129-677

TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1888.

No. 150.

HEMAN B. CHAPMAN, PLAINTIFF IN ERROR,

vs.

ASHBEL H. BARNEY, PRESIDENT OF THE UNITED STATES EXPRESS COMPANY.

IN ERROR TO THE CIRCUIT COURT OF THE UNITED STATES FOR THE NORTHERN DISTRICT OF ILLINOIS.

FILED OCTOBER 17, 1885.

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JUDD & DETWEILER, PRINTERS, WASHINGTON, AUGUST 2, 1888.

1 Pleas in the circuit court of the United States for the northern district of Illinois, held at the United States court-rooms, in the city of Chicago, in the district aforesaid, before the Hon. Henry W. Blodgett, district judge of the United States for said northern district of Illinois, on Saturday, the twenty-seventh day of March, in the adjourned March term of said court, in the year of our Lord one thousand eight hundred and eighty, and of our Independence the one hundred and fourth year.

WM. H. BRADLEY, *Clerk.*

NORTHERN DISTRICT OF ILLINOIS, *ss:*

ASHBEL H. BARNEY, President of the United States Express Company,
vs.
HEMAN B. CHAPMAN. } 16309.

Trover and attachment.

Be it remembered that on the third day of April, 1879, came the plaintiff, by his attorneys, and filed in the office of the clerk of the circuit court of the United States for the northern district of Illinois, at Chicago, in said district, his præcipe for a writ of summons, and also at the same time filed his bond for costs in said entitled cause; which said præcipe and bond are, respectively, in the words and figures following, to wit:

2 *Præcipe.*

In the Circuit Court of the United States for the Northern District of Illinois.

THE UNITED STATES EXPRESS COMPANY
vs.
HEMAN B. CHAPMAN.

Assumpsit; damages, $20,000.

Hon. W. H. Bradley, clerk of said court.

SIR: Issue summons as above to marshal of said district, & oblige—

Yours, &c., E. F. BULL, *Pl'ff's Att'y.*

Endorsed: Filed April 3, 1879. W. H. Bradley, cl'k.

Bond for Costs.

UNITED STATES OF AMERICA,
Northern District of Illinois, } ss:

Circuit Court. May Term, A. D. 1879.

THE UNITED STATES EXPRESS COMPANY
vs.
HEMAN B. CHAPMAN.

Assumpsit.

I enter myself security for costs in this cause and promise to pay all costs which may accrue to the opposite party in this
3 action or to any of the officers of this court, and in default of payment by the plaintiff of any costs ordered or adjudged to be paid by it hereby agree and stipulate that execution may issue against my property for any costs taxed against it.

Dated this third day of April, A. D. 1879.

H. D. COLVIN,
Gen. Agent for United States Ex. Co., Chicago, Ill.

Endorsed: Filed Apr. 3d, A. D. 1879. W. H. Bradley, clerk.

On the same day, to wit, on the third day of April, 1879, there issued out of said clerk's office a writ of summons in said entitled cause; which said writ, together with the return of the marshal thereto attached, are in words and figures following, to wit:

Summons.

4 CIRCUIT COURT OF THE UNITED STATES OF AMERICA,
Northern District of Illinois, } ss:

The United States of America to the marshal of the northern district of Illinois, Greeting:

We command you to summon Heman B. Chapman, if found in your district, to be and appear before our judges of the circuit court of the United States for the northern district of Illinois on the first day of the next term thereof, to be holden at Chicago, in the district aforesaid, on the first Monday of May next, to answer unto the United States Express Company of a plea of trespass on the case upon promises, to its damage, as it is alleged, of twenty thousand dollars, and have you then and there this writ.

Witness the Hon. Morrison R. Waite, Chief Justice of the Supreme Court of the United States of America, at Chicago aforesaid, this 3d day of April, in the year of our Lord one thousand eight hundred and seventy-nine, and of our Independence the 103d year.

[SEAL.] WM. H. BRADLEY, *Clerk.*

[Endorsed:] Gen. No. —. Circuit court of the United States, northern district of Illinois. —— —— *vs.* —— ——. Summons. Returnable —— term, A. D. 188–. ——, clerk. Filed ——, A. D. 188–. ——, clerk. ——, attorney.

5 *Special Deputy's Return.*

UNITED STATES OF AMERICA,
Northern District of Illinois, } ss:

Know all men by these presents that I have appointed, and by these presents do appoint, John McBoyle my true and lawful deputy to execute the annexed writ, The United States Express Co. *vs.* Heman B. Chapman, and to make return of the execution thereof according to law.

JESSE S. HILDRUP, [SEAL.]
U. S. Marshal for the Northern District of Illinois.

I have served the annexed writ in the following manner, to wit: By reading the same to and in the presence and the hearing of Heman B. Chapman, therein named, on the 10th day of April, A. D. 1879.

JESSE S. HILDRUP,
United States Marshal,
By JOHN McBOYLE,
Special Deputy.

UNITED STATES OF AMERICA,
Northern District of Illinois, } ss:

John McBoyle, being duly sworn, deposes and says that he served the annexed writ as stated in the foregoing return, and that the expense returned by him, in addition to the fees, was actually incurred, and that the same is according to law.

JOHN McBOYLE.

6 Subscribed and sworn to before — this 10th day of April, A. D. 1879.

[SEAL.] ANDREW J. O'CONOR,
Notary Public.

Endorsed: Filed Apr. 11th, A. D. 1879, W. H. Bradley, clerk.

Afterwards, to wit, on the twenty-seventh day of June, 1879, came the plaintiff, by its attorneys, and filed in said clerk's office its declaration in said entitled cause; which said declaration is in the words and figures following, to wit:

Declaration.

UNITED STATES OF AMERICA, } ss:
Northern Dist. of Ills., }

Circuit Court of said District. July Term, A. D. 1879.

The United States Express Company, organized under and by virtue of a law of the State of New York, and a citizen of the State of New York, the plaintiff in this suit, by E. F. Bull and James W. Duncan, its attorneys, complains of Heman B. Chapman, a citizen of the State of Illinois, the defendant, who has been summoned, &c., of a plea of trespass on the case on promises, for that whereas on, to wit, the 14th day of September, A. D. 1878, at, to wit,
7 the county of La Salle, in the State of Illinois, to wit, at the district aforesaid, the said plaintiff entrusted to the said defendant a large sum of money, to wit, the sum of fourteen thousand ($14,000) dollars, which the said defendant then and there received from the plaintiff for the purpose of delivering the same to the Matthiessen & Hegeler Zinc Company at La Salle, to wit, at the district aforesaid, and said defendant then and there, in consideration of the premises and of a certain reasonable reward to be paid by plaintiff to said defendant, promised the plaintiff to take the said sum of money so delivered by the plaintiff to the defendant as aforesaid and to deliver the same to the said Matthiessen & Hegeler Zinc Company at, to wit, the district aforesaid; yet the defendant, disregarding his promises, did not nor would deliver the said money so received by him as aforesaid to the said Matthiessen & Hegeler Zinc Company, but, on the contrary, converted the same to his own use, and by reason of the premises the said defendant became and was then and there liable to pay the said plaintiff the said sum of fourteen thousand ($14,000) dollars, and in consideration thereof promised the plaintiff to pay it the said sum of money on request.

2d count. And also for that whereas on, to wit, the 14th
8 day of September, A. D. 1878, the said plaintiff was engaged in the business of transporting money and other valuable packages at, to wit, the district aforesaid, and, being engaged in said business, had employed the said defendant as its clerk & agent for a certain reasonable reward, to wit, the sum of forty ($40) dollars per month, to be paid to the said defendant, and by virtue of such employment the said defendant, at the said time, when, &c., received from this plaintiff a valuable package, containing a large sum of money, to wit, the sum of $20,000, with directions from said plaintiff to deliver the said package to the Matthiessen & Hegeler Zinc Company at La Salle, to wit, at the district aforesaid, and said defendant then and there received the said package in the course of his said employment, and in consideration of the premises and of the said employment then and there agreed to deliver the said package of money to the said Matthiessen & Hegeler Zinc Company at, to wit, the district aforesaid; yet the said defendant, disregarding his promises in this behalf, did not nor would deliver the said package

containing the said sum of money to the said Matthiessen & Hegeler Zinc Company, but, on the contrary thereof, converted the same to his own use, whereby and by reason whereof the defendant
9 became and was liable to pay the said plaintiff the said sum of money at, to wit, the district aforesaid; and, being so liable, in consideration of the premises, then and there promised to pay to the plaintiff the said sum of money aforesaid; yet, although often requested, the said defendant hath not paid the said plaintiff the said several sums of money or either of them or any part thereof, although often requested so to do, to plaintiff's damage twenty thousand ($20,000) dollars; and therefore it brings this suit, &c.

By E. F. BULL & JAMES W. DUNCAN,
Its Att'ys

Copy of Account Sued on.

Heman B. Chapman to the United States Express Co., Dr.

To money delivered by plaintiff to def't Sept. 14, 1878, to be delivered by def't to the Matthiessen & Hegleler Zinc Co., & by def't converted to his own use, $20,000.

Endorsed: Filed June 27, 1879. Wm. H. Bradley, clerk.

Afterwards, to wit, on the ninth day of July, 1879, came the defendant, by his attorneys, and filed in said clerk's office his pleas in said entitled cause; which said pleas are in the words and figures following, to wit:

10 *Pleas.*

Circuit Court of the United States for the Northern District of Illinois.

THE UNITED STATES EXPRESS COMPANY
v.
HEMAN B. CHAPMAN.

Assumpsit.

And the said Heman B. Chapman, defendant in this suit, by Dent & Black, his attorneys, comes and defends the wrong and injury when, &c., and says that he did not undertake or promise in manner and form as the said plaintiff hath above thereof complained against him; and of this he, the said defendant, puts himself upon the country, &c. And for a further plea in this behalf the defendant says that the plaintiff ought not to have his aforesaid action against him, the defendant, because he says that there is not, nor was at the time of the commencement of this suit, any such corporation as the United States Express Company, as by the said declaration is above supposed; and of this the defendant puts himself upon the country, &c.

DENT & BLACK,
Attorneys for Defendant.

Endorsed. Filed July 9, 1879. W. H. Bradley, clerk.

11 Afterwards, to wit, on the eighth day of August, 1879, came Joseph Shepard, by his attorneys, and filed in said clerk's office his affidavit in said entitled clause; which said affidavit is in the words and figures following, to wit:

Affidavit.

UNITED STATES OF AMERICA, *Northern District of Illinois,* } ss.:

In the Circuit Court of the United States for the Northern District of Illinois.

UNITED STATES EXPRESS COMPANY *vs.* HEMAN B. CHAPMAN.

Joseph Shepard, of the city of Chicago and district aforesaid, makes oath and says that he is the agent in this behalf of the said United States Express Company, the plaintiff above named, and that the said Heman B. Chapman, the above-named defendant, is indebted to the said United States Express Company in the sum of fourteen thousand dollars, after allowing all just credits and set-offs, for money had and received by said defendant for the use of said plaintiff—that is to say, that on the 14th day of September, A. D. 1878, at the county of La Salle, in said district aforesaid,
12 the said defendant, who was then and there in the hire and employ of said plaintiff as its clerk or agent, received of and from said plaintiff, and said plaintiff, confiding in the honesty and integrity of said defendant, then and there delivered to said defendant, as such clerk or agent, and in the course of his said employment, the said sum of fourteen thousand dollars, which said sum of money was as aforesaid delivered to said defendant, and by said defendant so received for the sole purpose of delivering the same, and was then and there instructed and directed by said plaintiff to deliver the same, on the day aforesaid, to the Matthiessen and Hegeler Zinc Company, a corporation organized under the laws of the State of Illinois, at its place of business, in the city of La Salle, in said county of La Salle and district aforesaid, and that said defendant then and there agreed to and with said plaintiff to deliver said sum of money so received by him as aforesaid, on the day aforesaid, to said corporation, the Matthiessen and Hegeler Zinc Company, at its said place of business, in said city of La Salle aforesaid, but that said defendant did not deliver said sum of money or any part thereof to said Matthiessen and Hegeler Zinc Company, on the day aforesaid or at any other time, but by fraud and circumvention—that is, by pretending and insisting that he, said defendant, after
13 receiving said sum of money had been robbed of the whole of said sum of money on the day aforesaid, when in truth and in fact he, the said defendant, had not been robbed of said money or any part thereof, but on the day aforesaid, to wit, on the 14th day of September, 1878, at said county of La Salle, in said district aforesaid, there and then converted and disposed of the said sum of money and the whole thereof to his own use.

And this affiant further says that the said Heman B. Chapman, defendant, is about to depart from this, the said State of Illinois and district aforesaid, with the intention of having his effects removed therefrom, and also that he, the said defendant, has within two years prior to the filing of this affidavit fraudulently concealed and disposed of his property so as to hinder and delay his creditors, and also that he, said defendant, is about fraudulently to conceal, assign, or otherwise dispose of his property and effects so as to hinder and delay his creditors.

And this affiant further says that the place of residence of the said Heman B. Chapman is in the city of La Salle and county of La Salle and district aforesaid.

JOSEPH SHEPARD.

Subscribed and sworn to before me this 8th day of August, A. D. 1879.

WM. H. BRADLEY, *Clerk.*

Endorsed: Filed Aug. 8, 1879. W. H. Bradley, clerk.

14 On the same day, to wit, on the eighth day of August, 1879, there was filed in said clerk's office a bond in said entitled cause; which said bond is in the words and figures following, to wit:

15 *Attachment Bond.*

Know all men by these presents that we, The United States Express Company, as principal, and Joseph Shepard and Harvey D. Colvin, as sureties, are held and firmly bound unto Heman B. Chapman in the penal sum of twenty-eight thousand dollars, lawful money of the United States; for the payment of which said sum, well and truly to be made, we bind ourselves, our heirs, executors, and administrators, jointly and severally, by these presents.

Sealed with our seals and dated this 8th day of August, 1879.

The condition of the above obligation is such that whereas the above-bounden United States Express Company has, on the day of the date hereof, prayed an attachment out of the superior court of Cook county, at the suit of the United States Express Company against the estate of the above-named Heman B. Chapman, for the sum of fourteen thousand dollars; and the same being about to be sued out of said court, returnable on the first Monday of October, A. D. 1879, to the term of the said court then to be holden, now, if the said United States Express Company shall prosecute its said suit with effect, or, in case of failure therein, shall well and truly pay and satisfy the said Heman B. Chapman all such costs in said suit and such damages as shall be awarded against the said United States Express Company, its successors and assigns, in any suit or suits which may hereafter be brought for wrongfully suing out the

said attachment, then the above obligation to be void; otherwise to remain in full force and effect.

HARVEY D. COLVIN, [SEAL.]
For UNITED STATES EX. CO. [SEAL.]
HARVEY D. COLVIN. [SEAL.]
JOSEPH SHEPARD. [SEAL.]

Signed, sealed, and delivered in the presence of—
WM. H. BRADLEY, *Clerk*.

Endorsed: Filed this eighth day of August, A. D. 1879. W. H. Bradley, clerk.

[Endorsed:] General No. —. Term No. —. Circuit court United States, northern district of Illinois. — term, A. D. 188–. —— —— *vs.* —— ——. Attachment bond. Filed this — day of ——, A. D. 188–. —— ——, clerk. —— ——, attorney.

16 On the same day, to wit, on the eighth day of August, 1879, there issued out of said clerk's office a writ of attachment in said entitled cause; which said writ, together with the return of the marshal thereto attached, are in the words and figures following, to wit:

17 CIRCUIT COURT OF THE UNITED STATES OF AMERICA, } *ss*:
Northern District of Illinois, }

The United States of America to the marshal of the northern district of Illinois, Greeting:

Whereas The United States Express Company hath complained that Heman B. Chapman is justly indebted to it to the amount of fourteen thousand dollars, and oath having been also made that said Heman B. Chapman is about to depart from the State of Illinois and from said district, with the intention of having his effects removed therefrom, and also that the said defendant has, within two years prior to the filing of this affidavit, fraudulently concealed and disposed of his property so as to hinder and delay his creditors, and also that he, the said defendant, is about fraudulently to conceal, assign, or otherwise dispose of his property and effects so as to hinder and delay his creditors, and the said The United States Express Company having given bond and security according to law:

We therefore command you that you attach so much of the estate, real or personal, of the said Heman B. Chapman to be found in your district as shall be of value sufficient to satisfy the said debt and costs, according to the said complaint, and such estate so attached in your hands to secure, or so to provide that the same may be liable to further proceeding thereupon according to law; and that you summon the said Heman B. Chapman to appear and answer the complaint of the said The United States Express Company at a circuit court of the United States for the northern district of Illinois to be holden at Chicago, in the district aforesaid, upon the first

Monday of October next, when and where you shall make known to the said court how you have executed this writ, and have you then and there this writ.

Witness the Hon. Morrison R. Waite, Chief Justice of the Supreme Court of the United States of America at Chicago aforesaid, this eighth day of August, in the year of our Lord one thousand eight hundred and seventy-nine, and of our Independence the 104th year.

[SEAL.] WM. H. BRADLEY, *Clerk.*

[Endorsed] Gen. No. —. Circuit court of the United States, northern district of Illinois, —— —— *vs.* —— ——. Attachment writ. Returnable —— term, A. D. 18—. —— ——, clerk. Filed ——, A. D. 18—. —— ——, clerk. —— ——, attorney.

18 *Special Deputy's Return.*

UNITED STATES OF AMERICA, *Northern District of Illinois,* } *ss:*

Know all men by these presents that I have appointed and by these presents do appoint Sam'l W. Porter my true and lawful deputy to execute the annexed writ—The United States Ex. Co. *vs.* Heman B. Chapman—and to make return of the execution thereof according to law.

JESSE S. HILDRUP, [SEAL.]
U. S. Marshal for the Northern District of Illinois.

I have served the annexed writ in the following manner, to wit: By reading the same to and in the presence and the hearing of James Meurthel on the 18 day of Aug., A. D. 1879; of Heman B. Chapman, therein named, on the 18 day of Aug., A. D. 1879, and by levying upon 1 sealed package said to contain about three hundred dollars, consisting of national bank notes and United States Treasury notes, 1 gold hunting-case watch and chain, two two-and-——-half dollar gold pieces, as the property of the within-named Heman B. Chapman.

I did not serve —— ——, the other defendant therein named, being unable to find — within my district.

JESSE S. HILDRUP,
United States Marshal,
By SAMUEL W. PORTER,
Special Deputy.

Marshal's fees:

— copies ---------- $
— miles ----------
— service ----------
Oath and certificate of service- .25

$

UNITED STATES OF AMERICA, } ss:
Northern District of Illinois, }

Samuel W. Porter, being duly sworn, deposes and says that he served the annexed writ as stated in the foregoing return, and that the expense returned by him in addition to the fees was actually incurred, and that the same is according to law.

SAM'L W. PORTER.

Subscribed and sworn to before me this 21st day of October, A. D. 1879.

[SEAL.] ANTHONY HOENER,
Notary Public.

Endorsed: Filed Oct. 24th, A. D. 1879. W. H. Bradley, clerk.

19 Afterwards, to wit, on the tenth day of October, 1879, came the plaintiff, by its attorney, and filed in said clerk's office its motion in said entitled cause; which said motion is in the words and figures following, to wit:

Motion.

In the Circuit Court of the United States, Northern District of Illinois.

THE UNITED STATES EXPRESS COMPANY

vs.

HEMAN B. CHAPMAN.

And now comes said pl'ff, by E. F. Bull, its att'y, and moves the court for leave to change the name of the plaintiff to "Ashbel H. Barney, president of the United States Express Company," and to amend the declaration and other papers in the cause so as to conform to such change in the name of the plaintiff.

E. F. BULL,
Pl'ff's Att'y.

And now again comes said plaintiff & moves the court for leave to change the form of action to trover and to file a declaration herein to conform to such change in the form of action.

E. F. BULL,
Pl'ff's Att'y.

Endorsed: Filed Oct. 10, 1879. Wm. H. Bradley, clerk.

20 On the same day, to wit, on the tenth day of October, in the adjourned October term of said court, 1879, in the record of the proceedings thereof in said entitled cause, before Hon. Henry W. Blodgett, district judge, is the following entry, to wit:

Order.

THE UNITED STATES EXPRESS COMPANY
vs.
HEMAN B. CHAPMAN.

Assumpsit.

On motion of the plaintiff, by its attorney, leave is given it to file an amended declaration and to make Ashbel N. Barney, president of the United States Express Company, the plaintiff herein, and to change the action from assumpsit to trover, and the defendant is hereby ruled to plead to the amended declaration in ten days after service of a copy of said amended declaration upon the defendant's attorneys.

Afterwards, to wit, on the twenty-fourth day of February, 1880, came the plaintiff, by its attorney, and filed in said clerk's office its amended declaration in said entitled cause; which said amended declaration is in the words and figures following, to wit:

Amended Declaration.

21 In United States Circuit Court for the Northern District of Illinois.

THE UNITED STATES EXPRESS COMPANY
vs.
HEMAN B. CHAPMAN.

Assumpsit.

And now comes said plaintiff, by E. F. Bull, its attorney, and, by leave of the court for that purpose first had and obtained, amends the declaration herein in the manner following—that is to say, insert on line No. six (6) on the first page of the declaration the words "Ashbel H. Barney, president of," so as to make the name of the plaintiff read as follows, viz: "Ashbel H. Barney, president of the United States Express Company;" and in the 7th line of the first page of said declaration, after the word company, insert the words "a joint stock company;" and in the 10th line of said first page, after the word- "New York," insert the following: And which said company is authorized by the laws of the State of New York to maintain and bring suits, in the name of its president, for or on account of any right of action accruing to said company.

E. F. BULL, *Pl'ff's Att'y.*

Endorsed: Filed Feb. 24, 1880. W. H. Bradley, cl'k.

22 Afterwards, to wit, on the twenty-seventh day of March, in the adjourned March term of said court, 1880, in the record of the proceedings thereof in said entitled cause, before Hon. Henry W. Blodgett, district judge, is the following entry, to wit:

Judgment.

ASHBEL H. BARNEY, President of the United States Express Company,

vs.

HEMAN B. CHAPMAN.

Trover and attachment.

This cause having this day been called for trial, now comes the plaintiff, by his attorney, the defendant and his attorney failing to appear, and, upon issue joined upon the plea herein, on motion of the plaintiff's attorney, thereupon comes a jury of good and lawful men, to wit, Benjamin W. Gray, C. H. Hart, E. Thacher, Charles Curtis, S. W. McMaster, Thomas North, W. W. Eggleston, H. R. Willard, B. F. Porter, David Forsythe, John Benjamin, and D. T. Robinson, who were all duly elected, tried, and sworn well and truly to try said issue; and, after hearing the evidence on the part of the plaintiff and receiving the instructions of the court, the jury returned the following verdict, to wit: We, the jury, find the
23 issue for the plaintiff, and assess his damages at fourteen thousand dollars. It is thereupon considered and adjudged by the court that the plaintiff do have and recover of the defendant the said sum of fourteen thousand dollars, his damages, together with his costs and charges in this behalf expended, amounting to the sum of thirty-six dollars and fifty-five cents, and that he have execution therefor.

And it appearing to the court that the following goods and chattels have been attached herein by the marshal, to wit, one sealed package said to contain about three hundred dollars, consisting of national bank notes and United States Treasury notes; one gold hunting-case watch and chain, two two-and-one-half-dollar gold pieces, as the property of the defendant, it is ordered that said goods and chattels be sold and the proceeds applied on said judgment, and that a special writ of *fieri facias* issue for that purpose.

24 Afterwards, to wit, on the eighth day of October, 1885, there was filed in said clerk's office a bond in said entitled cause; which said bond is in the words and figures following, to wit:

Bond.

Know all men by these presents that we, Heman B. Chapman and Sylvester M. Chapman, are held and firmly bound unto Ashbel H. Barney, president of the United States Express Company, in the full and just sum of two hundred and fifty dollars, to be paid to the said Ashbel H. Barney, president of the United States Express Company, certain attorney, executors, administrators, or assigns; to which payment, well and truly to be made, we bind ourselves, our heirs, executors, and administrators, jointly and severally, by these presents.

Sealed with our seals and dated this eighth day of October, in the year of our Lord one thousand eight hundred and eighty-five.

Whereas lately at a term of the circuit court of the United States for the northern district of Illinois, in a suit depending in said court between Ashbel H. Barney, president of the United States Express Company, plaintiff, and said Heman B. Chapman, defendant,
25 — was rendered against the said Heman B. Chapman for the sum of fourteen thousand dollars and cost of suit, and the said Heman B. Chapman having obtained a writ of error and filed a copy thereof in the clerk's office of the said court to reverse the judgment in the aforesaid suit and a citation directed to the said Ashbel H. Barney, president of the United States Express Company, citing and admonishing him to be and appear at a Supreme Court of the United States to be holden at Washington the second Monday of October next:

Now, the condition of the above obligation is such that if the said Heman B. Chapman shall prosecute said writ of error to effect and answer all costs if he fail to make his plea good, then the above obligation to be void; else to remain in full force and virtue.

HEMAN B. CHAPMAN. [SEAL.]
SYLVESTER M. CHAPMAN. [SEAL.]

Sealed and delivered in presence of—
——— ———.

Approved by—
WALTER Q. GRESHAM,
Circuit Judge.

(Endorsed:) Filed Oct. 8, 1885. Wm. H. Bradley, cl'k.

26 NORTHERN DISTRICT OF ILLINOIS, *ss:*

I, William H. Bradley, clerk of the circuit court of the United States for said northern district of Illinois, do hereby certify the above and foregoing to be a true and correct transcript of the record of all the proceedings had in said court in the cause wherein Ashbel H. Barney, president of the United States Express Company, is the plaintiff and Heman B. Chapman is the defendant, as the same appear from the files and records of said court now remaining in my custody and control.

In testimony whereof I have hereunto set my hand and affixed the seal of said court, at my office, in Chicago, in said district, this ninth day of October, 1885.

[Seal of Circuit Court U. S., Northern Dist. Illinois, 1855.]

WM. H. BRADLEY, *Clerk.*

27 UNITED STATES OF AMERICA, } *ss:*
Northern District of Illinois, }

The United States of America to the judges of the circuit court of the United States for the northern district of Illinois, Greeting:

Because in the record and proceedings, as also in the rendition

of the judgment in a plea which is before you, in said circuit court, between Ashbel H. Barney, president of the United States Express Company, plaintiff, and Heman B. Chapman, in an action of trover, manifest error hath happened, to the great damage of the said Heman B. Chapman, as by his complaint appears, and it being fit that the error, if any there has been, should be duly corrected and full and speedy justice done to the parties aforesaid in this behalf, you are hereby commanded, if judgment be given therein, that then, under your seal, distinctly and openly, you send the record and proceedings aforesaid, with all things concerning the same, to the Supreme Court of the United States, together with this writ, so that you have the same at Washington on the second Monday of October, A. D. 1885, in the Supreme Court to be then and there held, that, the record and proceedings aforesaid being inspected, the said Supreme Court may cause further to be done therein to correct that error what of right and according to the law and custom of the United States should be done.

Witness the Hon. Morrison R. Waite, Chief Justice of the Supreme Court of the United States, this eighth day of October, in the year of our Lord one thousand eight hundred and eighty-five, and of the Independence of the United States the 110th year.

[Seal of Circuit Court U. S., Northern Dist. Illinois, 1855.]

WM. H. BRADLEY,
Clerk of the U. S. Circuit Court, Nor. Dist. of Ills.

[Endorsed:] Supreme Court of the United States. Heman B. Chapman, plaintiff in error, *vs.* Ashbel H. Barnes, president, &c., defendant in error. Writ of error. Copy deposited for the defendant in error in the clerk's office U. S., northern district of Illinois.

28 *Law.*

STATE OF ILLINOIS, } *ss:*
County of La Salle, }

Pleas, proceedings, and judgments before the Honorable George W. Stipp, one of the judges of the ninth judicial circuit of the State of Illinois, at a regular term of the La Salle county circuit court, begun and held at the county court-house, in the city of Ottawa, in said county and State, on the second Monday (being the thirteenth day) of October, A. D. 1879, and of the Independence of the United States of America the one hundred and third.

Present: The Honorable George W. Stipp, presiding judge; Henry Mayo, State's attorney; Rufus C. Stevens, sheriff.
Attest: ROSWELL W. HOLMES, *Clerk.*

Be it remembered that afterwards, to wit, on Monday, *of* the twenty-ninth day of December, A. D. 1879, the same being one of the days of the October term of said court for said year, certain proceedings were had and entered of record in said court in a cause entitled The People *vs.* Heman B. Chapman, indictment for perjury, in the words and figures following, viz:

THE PEOPLE, etc., *vs.* HEMAN B. CHAPMAN. } 61.

Indictment for perjury.

This day again come The People, by Henry Mayo, the State's attorney, as well as by E. F. Bull and James W. Duncan, and the defendant also comes in his own proper person, as well as by George S. Eldredge and Charles Blanchard, his attorneys, and thereupon the court sentences said defendant, Heman B. Chapman, to
29 imprisonment in the State penitentiary at Joliet for a period of seven (7) years, one day of said term to be spent in solitary confinement and the balance of said term at hard labor; and the sheriff of this county is ordered to deliver the body of said defendant, Heman B. Chapman, to the warden or keeper of said penitentiary with all convenient speed.

STATE OF ILLINOIS, *County of La Salle,* } *ss:*

I, Roswell W. Holmes, clerk of the circuit court in and for said county, in the State aforesaid, and keeper of the records and files thereof, do hereby certify the above and foregoing to be a true, full, and complete copy of the sentence of Heman B. Chapman in a certain cause wherein The People are plaintiffs and Heman B. Chapman is defendant.

In witness of which I hereunto set my hand and official seal this 31st day of December, A. D. 1879.

[SEAL.] ROSWELL W. HOLMES, *Clerk.*

ILLINOIS STATE PENITENTIARY,
JOLIET, ILL., *Oct.* 10, 1885.

I, Robert W. McClaughey, warden of the Illinois State penitentiary, do hereby certify that the above and foregoing is a correct and complete copy of the mittimus received from the circuit court of La Salle county, Illinois, in the case of Heman B. Chapman, under which said Chapman served a term of seven years in said penitentiary, as the same appears from the records and files of said penitentiary, of which I am the custodian.

In witness whereof I have affixed my name and the seal of said penitentiary this 10th day of October, 1885.

[Seal Illinois State Penitentiary, Joliet.]

ROBERT W. McCLAUGHEY, *Warden.*

30 [Endorsed:] Transcript of sentence. The People, etc., *vs.* Heman B. Chapman. Executed by delivering the body of the within-named defendant to the warden of the penitentiary at Joliet this 2d day of January, 18—. R. C. Stephens, sheriff, by T. B. Stumpt, deputy. Filed Oct. 12, 1885. Wm. H. Bradley, clerk.

STATE OF ILLINOIS, } ss:
Cook County, }

I, Heman B. Chapman, make oath and say that I am the defendant named in this mittimus, and am the defendant named in the record of the judgment of Ashbel A. Barney, president of the United States Express Company, hereto attached, and that I have been confined and imprisoned constantly from the 29th day of March, 1880, the day said judgment was rendered, until this day, as follows: From January 2, 1880, to October, 1884, in the said penitentiary at Joliet, under said sentence set out in said mittimus; and from October, 1884, to this day, in the county jail of Cook county, under a *capias ad satisfaciendum* issued upon said judgment.

HEMAN B. CHAPMAN.

Subscribed & sworn to before me this 12 day of October, 1885.

[Benj'n P. Price, Cook County, Ill., Notarial Seal.]

BENJ'N P. PRICE,
Notary Public.

31 UNITED STATES OF AMERICA, } ss:
Northern District of Illinois, }

To Ashbel H. Barney, president of the United States Express Company, a joint stock company, etc., Greeting:

You are hereby cited and admonished to be and appear at a Supreme Court of the United States to be holden at Washington on the second Monday of October, A. D. 1885, pursuant to an writ of error filed in the clerk's office of the circuit court of the United States for the northern district of Illinois, wherein Heman B. Chapman is the plaintiff in error and you, the said Ashbel H. Barney, president of the United States Express Company, a joint stock company, is the defendant in error, to show cause, if any there be, why the judgment mentioned should not be corrected and speedy justice should not be done to the parties in that behalf.

Witness the Hon. Walter Q. Gresham, circuit judge of the seventh circuit, this eighth day of October, in the year of our Lord one thousand eight hundred and eighty-five.

W. Q. GRESHAM,
Circuit Judge.

Service of above accepted this 9th day of Oct., A. D. 1885, by—
ASHBEL H. BARNEY, *Pres't, &c.,*
Per A. WYGANT, *Agent.*

32 [Endorsed:] Supreme Court of the United States. Heman B. Chapman, plaintiff in error, *vs.* A. H. Barney, pres't, &c., def't in error. Citation to October term, A. D. 1885. Robert T. McNeal & F. C. Baker, for pl'ff in error.

33 Supreme Court of the United States, of the October Term, A. D. 1885.

HEMAN B. CHAPMAN, Plaintiff in Error,

vs.

ASHBEL H. BARNEY, President of the United States Express Company, a Joint Stock Association, Defendant in Error.

Error to the circuit court for the northern district of Illinois.

Afterwards, to wit, on the second Tuesday of October, in the said October term, 1885, before the justices of the Supreme Court of the United States, at the Capitol, in the city of Washington, comes the said Heman B. Chapman, plaintiff in error, by Robert T. McNeal, his attorney, and says and shows to the Court that in the record and proceedings aforesaid there is manifest error, in this, to wit:

First. That the declaration aforesaid and the matters therein contained are not sufficient in law for the said Ashbel H. Barney, president of the United States Express Company, a joint stock association, to have or maintain its aforesaid action thereof against the said Heman B. Chapman.

34 Second. There is also error, in this, to wit, that the said circuit court permitted a new sole plaintiff, Ashbel H. Barney, president of the United States Express Company, to be substituted in said cause for and in the place of the original plaintiff, The United States Express Company.

Third. There is also error, in this, to wit, that the said cause was by said circuit court submitted to the jury as upon issue joined between Ashbel H. Barney, president of the United States Express Company, plaintiff, and Heman B. Chapman, defendant, when in fact no issues were ever joined in said cause between said parties, nor was there any issue in said cause for a jury.

Fourth. There is also error, in this, to wit, that no notice was ever given to the said defendant, Heman B. Chapman, of the filing of the amendments of the declaration in said cause substituting Ashbel H. Barney, president of the United States Express Company, as plaintiff; nor was the said defendant below, Heman B. Chapman, given any time, day, or opportunity to plead to the declaration of said Ashbel H. Barney, president of the United States Express Company, or to defend against his suit, or any day in court to answer to and defend said suit.

35 Fifth. There is also error, in this, to wit, that it appears from the record that no copy of the amendment to the declaration in said cause was ever served upon the said Heman B. Chapman or his attorney, nor was the said Heman B. Chapman in any manner notified of the filing of such amendment.

Sixth. There is also error, in this, to wit, that by the record aforesaid it appears that a verdict was rendered in favor of said Ashbel H. Barney, president of the United States Express Company, and against the said Heman B. Chapman, when no issue has been joined between said parties, and said Heman B. Chapman had not been

summoned or in any other way notified to appear to defend the suit of said Ashbel H. Barney, president of the United States Express Company, against him or in any manner given his day in court or any opportunity to defend against the said suit.

Seventh. That there is also error, in this, to wit, that by the record aforesaid it appears that the judgment aforesaid was given for the said Ashbel H. Barney, president of the United States Express Company, against the said Heman B. Chapman, when by the law of the land no judgment in said action ought to have been given
36 for the said Ashbel H. Barney, president of the United States Express Company, or against the said Heman B. Chapman; and the said Heman B. Chapman prays that judgment aforesaid may be reversed, annulled, and altogether held for nothing, and that he may be restored to all things he hath lost by occasion of the said judgment.

ROBERT T. McNEAL,
Attorney for Plaintiff in Error.

[Endorsed:] In the supreme court. Heman B. Chapman, pl'ff in error, *vs.* Ashbel H. Barney, president, etc. Assignment of errors.

Endorsed on cover: N. Illinois C. C. U. S. No. 150. Heman B. Chapman, plaintiff in error, *vs.* Ashbel H. Barney, president of the United States Express Company. Filed October 17, 1885.

Office Supreme Court U. S.
FILED.
NOV 17 1888
JAMES. H. McKENNEY,
CLERK.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, A. D. 1888.

No. 150.

HEMAN B. CHAPMAN,
Plaintiff in Error,
vs.
ASHBEL H. BARNEY, PRESIDENT OF THE UNITED STATES EXPRESS COMPANY,
Defendant in Error.

Error to the Circuit Court of the United States for the Northern District of Illinois.

BRIEF OF PLAINTIFF IN ERROR.

ROBERT T. McNEAL,
Of Counsel for Plaintiff in Error.

CHICAGO:
PRINTED BY THE CHICAGO LEGAL NEWS COMPANY, 87 CLARK STREET
1888.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, A. D. 1888.

No. 150.

HEMAN B. CHAPMAN,
Plaintiff in Error,
vs.
ASHBEL H. BARNEY, PRESIDENT OF THE UNITED STATES EXPRESS COMPANY,
Defendant in Error.

Error to the Circuit Court of the United States for the Northern District of Illinois

STATEMENT OF THE CASE.

On the third day of April, 1879, a suit in assumpsit was brought in the court below by the "United States Express Company,"—plaintiff, against plaintiff in error, defendant. Process was duly issued and served on defendant on April 10th, and at the July term, 1879, a declaration was filed beginning as follows: "The United States Express Company, organized under and by virtue of a law of the State of New York, and a citizen of the state of New York, the plaintiff in this suit, complains of Heman B. Chapman, defendant, of a plea of trespass on the case on promises, etc.," and then avers that plaintiff intrusted to defendant $14,000 to be delivered to a certain company at La Salle; that defendant promised to deliver the same but did not, and converted the same to his own use, whereby he became liable to

the plaintiff said sum of money, and, being so liable, promised to pay the same, and has not done so, to the damage of the plaintiff $20,000. (Rec. pp. 4-5.)

To this declaration defendant below, on July 9, 1879, and at the July term, 1879, filed two pleas, *non assumpsit* and *nul, tiel corporation* (Rec. 5).

On August 8, 1879, an affidavit was filed in said cause in behalf of the "United States Express Company," plaintiff, and an attachment writ issued in behalf of the "United States Express Company, plaintiff." (Rec. pp. 7–9.)

At the October term of said Circuit Court, 1879, and on October 10, 1879, there was filed in said cause the following motions:

THE UNITED STATES EXPRESS COMPANY
vs.
HEMAN B. CHAPMAN.

And now comes said plaintiff by E. F. Bull, its attorney and moves the Court for leave to change the name of the plaintiff to "Ashbel H. Barney, President of the United States Express Company," and to amend the declaration and other papers so as to conform to such change in the name of the plaintiff.

E. F. BULL,
Plaintiff's attorney.

And now again comes said plaintiff and moves the court for leave to change the form of action to trover and to file a declaration herein to conform to such change in the form of action.

E. F. BULL,
Plaintiff's Attorney.

On the same day the court below made the following order:

On motion of the plaintiff and its attorney leave is given it to file an amended declaration, and to make Ashbel H. Barney, president of the United States Express Company, the plaintiff herein, and to change its action from assumpsit to trover, and the defendant is hereby ruled to plead to the amended declaration in ten days after service of a copy of said amended declaration upon the defendant's attorneys.

Afterward, at the December term, 1879, of said court and on February 24, 1880, plaintiff filed the following amended declaration:

THE UNITED STATES EXPRESS COMPANY
vs.
HEMAN B. CHAPMAN.

And now comes the said plaintiff by E. F. Bull, its attorney, and by leave of the court amends the declaration in the manner following: On line No. 6, etc., insert the words "Ashbel H. Barney, President of," so as to make the name of the plaintiff read as follows: "Ashbel H. Barney, President, and the United States Express Company," and in the 7th line, etc., insert the words "a joint stock company," and in the 10th line, after words "New York" insert "and which said company is authorized by the laws of the State of New York to maintain and bring suits in the name of the President for and on acccount of any right of action accruing to said company.

E. F. BULL,
Plaintiff's Attorney.

(Rec. p. 11.)

After the leave to amend the declaration was given, and before the filing of the amended declaration, plaintiff in error was convicted of perjury in the Circuit Court of La Salle County, Illinois, and sentenced to imprisonment in the Joliet Penitentiary for the term of seven years, and under this sentence he was, on January 2, 1880, removed to said penitentiary, and there imprisoned until October, 1884. (Rec. pp. 14–16.)

No notice of the filing of said amended declaration was given to defendant's attorneys as required by the order of October 10, 1879, nor was any order for the default of defendant for want of plea to said amended declaration made—but, on March 27, 1880, while plaintiff in error was imprisoned, as aforesaid, without any plea having been filed by him to the amended declaration, or at the suit of Ashbel H. Barney, President of the United States Express Company, the case of "Ashbel H. Barney, President of the United States

Express Company, vs. Chapman," was called for trial, and the record shows the following proceedings:

Said cause having been called for trial, plaintiff appeared, and, defendant and his attorney failing to appear, thereupon, upon issue joined, comes a jury (naming them), who were sworn well and truly to try said issue, who, after hearing the evidence, returned the following verdict: We, the jury, find the issue for the plaintiff and assess his damages at fourteen thousand dollars; and then follows judgment in usual form on the verdict for $14,000 and costs.

On October 8, 1885, plaintiff in error filed in the Court below his bond for the prosecution of a writ of error to reverse said judgment with effect, which bond was duly approved by the Honorable Walter Q. Gresham, Circuit Judge. The *mittimus* under the sentence above referred to—the certificate of the warden of the penitentiary and the affidavit of plaintiff in error show that plaintiff in error was imprisoned in the Joliet penitentiary from January 2, 1880, to October, 1884 (Rec. pp. 14-16); and the affidavit of plaintiff in error further shows that on his discharge from the penitentiary in October, 1884—he was at once arrested on a *capias ad satisfaciendum* issued upon the judgment above set forth, and from that time until the time of the issuing of this writ he had been imprisoned in the county jail of Cook County, Illinois, upon such *capias*. (Rec. 16.), thus bringing his case within the provision of Sec. 1008 of the U. S. Revised Statutes, which provides that in case a party entitled to a writ of error is imprisoned, he may prosecute such writ within two years after judgment, exclusive of the term of such imprisonment.

Assignment of Errors Relied Upon.

I.

The court erred in permitting a new sole plaintiff, Ashbel H. Barney, President of the United States Express Company, to be substituted for, and in the place of, the sole original plaintiff, the United States Express Company.

II.

The court erred in submitting to the jury the cause of Ashbel H. Barney, President of the United States Express Company v. Chapman as upon issues joined between said parties, in entering the verdict of the jury in said cause, and in rendering judgment thereon in favor of said defendant in error, when there was no issue joined between said parties.

III.

The court erred in proceeding to trial and entering a verdict and rendering judgment against plaintiff in error when he had had no notice of the substitution of Ashbel H. Barney, President of the United States Express Company, as plaintiff for and in place of the original plaintiff, nor notice of the filing of the amended declaration whereby such change in the plaintiff was made, nor of the order of court authorizing the same, nor time, day or opportunity to plead to the declaration of said Ashbel H. Barney, President of the United States Express Company nor any day in court to answer to or defend against the suit of such new plaintiff.

POINTS FOR PLAINTIFF IN ERROR.

I.

The Circuit Court had no power to substitute a new sole plaintiff for the original sole plaintiff, by whom the suit was brought. The substitution of "Ashbel H. Barney, President of the United States Express Company," as plaintiff, for "The United States Express Company," the original plaintiff was such a substitution.

Davis Avenue R. R. Co. v. *Mallon*, 57 Ala. 168.

II.

If the Circuit Court had the power to permit the substitution of Ashbel H. Barney, President of the United States Express Company, as plaintiff for "The United States Express Company," the plaintiff in the original writ and decla-

ration; still, when pursuant to the leave of the court for that purpose had, the amended declaration was filed making such substitution, such amended declaration was a new declaration, the pleas of the general issue and *nul tiel* corporation theretofore pleaded to the original declaration were at an end, and the defendant must plead *de novo*.

Graham's Prac. 654.
Huckvale v. *Kendall*, 3 Barn. & Ald. 137, S. C. 5 E. C. L. 87.

The defendant below not having pleaded to the declaration as amended, there was no issue for the jury to try, and it was error to submit the cause to the jury as upon issue joined, when, in fact, there was no issue, and error to render judgment upon a verdict rendered in a cause in which there was no issue for the jury.

Marion Machine-Works v. *Craig*, 18 W. Va. 559–565.
B. & O. R. R. Co. v. *Christie*, 5 W. Va. 325–328.
McMillan v. *Dobbins*, 9 Leigh Va. 422.
Armstrong v. *Barton*, 42 Miss. 506.
Porterfield v. *Butler*, 47 Miss. 165–170.
Garland v. *Davis*, 4 How. 131.

III

The order of October 10, 1879, under which the declaration was amended gave defendant below ten days after service of a copy of the amended declaration upon defendant's attorneys to plead—and until such copy was served, and ten days had expired from the date of such service, the Circuit Court had no power to take any action against defendant, and the judgment having been rendered without the service of such copy, and, therefore, within the time limited by the order of the court for defendant to plead to the amended declaration, it will be reversed by this court.

Freeman on Judgments, Sec. 540.

In April, 1879, the United States Express Co. brought its suit *in assumpsit* against Heman B. Chapman, the plaintiff in error. The defendant was duly summoned to appear at the July term, 1879, and a declaration was filed in time for that term, beginning as follows:

"The United States Express Company, organized under the laws of the State of New York, and a citizen of the State of New York, plaintiff in the suit," etc.

And then alleged that plaintiff, an express company, entrusted to defendant, its messenger, $14,000 in currency, which defendant promised to deliver to a certain company, but failed to do so, and converted the same to his own use, etc.

To this declaration defendant below, at the July term, 1879, filed two pleas—first, *non assumpsit;* second, *nul tiel* corporation.

On Oct. 10, 1879, at the October term, leave was given to amend the declaration, and in the same order a rule was entered that defendant plead to amended declaration *within ten days after service of a copy of such amended declaration on his attorneys.* Nothing further was done at the October term, and it is to be noticed that the order of Oct. 10 was not that *the declaration be amended*—but that leave be given to plaintiff to file an amended declaration and to make "Ashbel H. Barney, the President of the United States Express Company, the plaintiff; and that defendant be ruled to plead to the same within ten days after service of a copy." (Rec. 11.)

There was no change of parties—no change of issues until the December term, 1879, when, on February 24th, 1880, the amended declaration was filed, making Ashbel H. Barney, President of the United States Express Company, the sole plaintiff. That the effect of the amendment was to introduce an entirely new plaintiff, it was said by the Supreme Court of Alabama, in a case in all respects like the case above, where the summons was against "Daniel McGill, President of the Davis Avenue Railroad," and the complaint against "The Davis Avenue Railroad Company," requires no argument.

Davis Avenue R. R. Co. v. *Mallon*, 57 Ala. 168.

And it was also held in that case that under the exceedingly liberal statute of Alabama it was not permissible to strike out one sole plaintiff and insert another.

It is respectfully submitted that the Circuit Court erred in permitting such substitution, and that, therefore, without regard to other errors and irregularities, the judgment in favor of the new plaintiff must be reversed.

But if the court should be of a different opinion, still it is clear that the judgment must be reversed.

If the Circuit Court had the power to permit the amendment to be made that was made, it was under Sec. 954 of the Revised Statutes, which provides that the court "may at any time permit either of the parties to amend any defect in the process or pleadings upon such conditions as it shall in its discretion and by its rule prescribe."

But for the order of Oct. 10, 1879, granting leave to amend the declaration, this paper could not have been filed even, much less made a part of the declaration, and it is too clear to require argument that a party in a court of justice can not adopt and take advantage of part of an order and disregard and disobey another part of the same order.

The order of October 10, 1879, was intended to protect the rights of all parties by giving leave to make a new plaintiff, and giving to the defendant his day in court to make his defense to the suit of such new plaintiff.

The course to be pursued by the new plaintiff when he should become a party under the order of October 10th, was plainly marked out by the terms of that order, and was a condition upon which the leave to amend was granted.

He had only to serve a copy of the amended declaration on defendant's attorneys, as required by that order, and then, if defendant below had failed to plead to the amended declaration within the time limited by the rule, he would have been entitled to a default and judgment upon *nil dicit* and assessment of damages; the plea of *non assumpsit* to the declaration of the United States Express Company was no answer to the

amended declaration of Ashbel H. Barney, President of the United States Express Company.

The plea of *nul tiel* corporation as to the original plaintiff, was no answer to the suit of the new plaintiff.

In *Huckvale, assignee of Atkins*, v. *Kendall*, 3 Barn. & Ald. 137, 5 En. Com. Law, 87, there was a plea of general issue and a notice that bankruptcy would be disputed. Then on May 4, pursuant to leave, an amended declaration was delivered and on June 11 a rule to plead given, and judgment for want of a plea given on June 22, and it was held that the general issue to the original declaration was at an end; that, therefore, there was no plea to the amended declaration and the judgment was regular.

There can be no doubt but that, if in this case a copy of the amended declaration had been served, as required by the order of Oct. 10, and defendant had failed to plead within ten days, plaintiff would have been entitled to a default and judgment upon *nil dicit*.

But the plaintiff must first comply with the rule in order to put the defendant in default.

But in place of complying with the order under which the amended declaration was filed, plaintiff below did nothing until the cause was reached for trial, and then, as the record shows, a jury was called in a cause in which "Ashbel H. Barney, President of the United States Express Company, was plaintiff, and Heman B. Chapman was defendant," to try the issue joined between said parties, and the jury found the issue for the plaintiff and assessed plaintiff's damage at fourteen thousand dollars, and the court rendered judgment upon the verdict.

That in this there was error, is too clear to require argument. There was no issue between the plaintiff in whose favor the judgment was rendered—"Ashbel H. Barney, President of the United States Express Company," and the defendant against whom it was rendered.

There was no issue upon the allegation of a promise; for the allegation as to a promise upon which defendant took issue

was the allegation that he promised the *United States Express Company*.

There was no issue upon the question of the incorporation, for the plea of the defendant was that there was no such corporation as the "United States Express Company," not that there was no such corporation as "*Ashbel H. Barney, President of the United States Express Company*," and that it is error to submit a case to a jury when there is no issue for the jury to try, is well settled.

In *B. & O. R. R.* v. *Christie*, 5 W. Va. 325–328, a judgment was reversed because, in a case where there was no plea to the amended declaration, a jury was sworn to try the issue.

See also cases cited, *ante* p. 6.

The objection that is here made can be taken advantage of on error, though there was no exception below.

In *Garland* v. *Davis*, 4 How. 131, this court reversed a judgment in an action on the case where the plea was *non assumpsit*, although no objection appeared in the record, nor was the defect noticed by counsel in their brief and assignment of error, but was first noticed by the court.

In conclusion, we submit that the answer that the learned counsel for defendant in error has always made; to the effect that Chapman was a bad man—that some officer, or agent, of the express company had sworn, and was willing to swear, to some marvelous admissions by plaintiff in error do not meet the case made by this record.

Such assertions are outside of the record, and irrelevant to the defects that appear upon this record; and, with confidence, we submit that an examination of the record will show that the judgment of the Circuit Court must be reversed.

Respectfully submitted,

ROBERT T. MCNEAL,
Of Counsel for Plaintiff in Error.

FRANK BAKER,
Attorney for Plaintiff in Error.

129-685

TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1885.

No. 167.

JOHN BÉNÉ AND ADOLPH GRÜNBERG, APPELLANTS,

vs.

EMILE JEANTET.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE SOUTHERN DISTRICT OF NEW YORK.

FILED OCTOBER 20, 1885.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1888.

No. 167.

JOHN BÉNÉ AND ADOLPH GRÜNBERG, APPELLANTS,

vs.

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APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE SOUTHERN DISTRICT OF NEW YORK.

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1 The President of the United States of America to Emile Jeantet, Greeting:

You are hereby commanded that you personally appear before the judges of the circuit court of the United States of America for the southern district of New York, in the second circuit court, in equity, on the first Monday of June, A. D. 1882, wherever the said court shall then be, to answer a bill of complaint exhibited against you in the said court by John Bene and Adolph Grünberg, and do further and receive what the said court shall have considered in that behalf; and this you are not to omit under the penalty on you of two hundred and fifty dollars.

Witness Honorable Morrison R. Waite, Chief Justice of the Supreme Court of the United States, at the city of New York, on the 24th day of April, in the year one thousand eight hundred and eighty-two, and of the Independence of the United States of America the one hundred and sixth.

J. M. DEUEL, *Clerk.*

SAM. TRO. SMITH,
Comp'l's Sol'r.

The defendant is required to enter appearance in the above cause in the clerk's office of this court on or before the first Monday of June, 1882, or the bill will be taken *pro confesso* against him.

J. M. D., *Clerk.*

2 STATE OF NEW YORK, }
So. Dist. of New York, City & County of New York, } ss:

Joseph J. Adgate, being duly sworn, says that he is of full age; that on the 25th day of April, 1882, he served the within subpœna on Emile Jeantet, the within-named defendant, at the city of New York, by handing to and leaving with him a true copy thereof, at the same time showing him the original writ, and that he knows the person so served to be the same person named in said suit as defendant.

J. J. ADGATE.

Sworn to before me this 26th day of April, 1882.

A. JAMES LUSK,
Notary Public, N. Y. Co.

I hereby depute Joseph J. Adgate to serve the within subpœna.
April 24th, 1882.

HENRY E. KNOX,
U. S. Marshal, S. D. N. Y.

I hereby certify that the within subpœna was served as appears by the affidavit of Joseph J. Adgate endorsed hereon.
March 1, 1883.

HENRY E. KNOX,
Late U. S. Marshal.

[Endorsed:] U. S. circuit court. Filed March 1, 1883. Timothy Griffith, clerk.

3 To the judges of the circuit court of the United States for the southern district of New York:

John Béné and Adolph Grünberg, both residing and domiciled in the city of New York and State of New York, bring this their bill of complaint against Emile Jeantet, a citizen of the State of New York, and thereupon your orators complain and allege that your orator, John Béné, was and is the original and first inventor of a new and useful improvement in the process of refining and bleaching hair, fully described in letters patent hereinafter mentioned, and which had not been known or used by others prior to his invention or discovery thereof, and which had not been at the time of his application for letters patent therefor, as hereinafter mentioned, in public use of on sale with his consent and allowance, contrary to the provisions of the acts of Congress of the United States in such case made and provided.

And you orators further show unto your honors that, being so as aforesaid the first and original inventor or discoverer of said process of refining and bleaching hair, and being a citizen of the United States, and being desirous to obtain an exclusive property in said invention or improvement within and for the United States, your orator, John Béné, did, on the 21st day of November, 1876, upon due application therefor, and having in all things complied with the conditions and requirements of the acts of Congress in such case made and provided, obtain letters patent of the United States for said invention and improvement in due form of law, under the seal of the Patent Office, signed by the Secretary of the Interior and countersigned by the Commissioner of Patents, bearing date
4 the said 21st day of November, 1876, and being numbered 184,577, by which said letters patent there was granted and secured to the said John Béné, his heirs, administrators, or assigns, for the term of seventeen years from the said 21st day of November, 1876, the full and exclusive right and liberty of making, using, and vending to others to be used, the said invention and improvement described and set forth in said letters patent, which said letters patent are now remaining of record in the Patent Office of the United States, and as by reference to which, or a duly authenticated copy thereof, ready in court to be produced if required, will more fully and at large appear; and by virtue whereof your orator, John Béné, became and was the sole owner of all the rights and privileges granted and secured, or intended to be granted and secured, in and by said letters patent.

And your orators further show that your orator, John Béné, having good and lawful cause, after the issuing of said letters patent as aforesaid, surrendered the same to the Commissioner of Patents, and, having made due application therefor, and having in all things complied with the conditions and requirements of the acts of Congress in such case made and provided, did, on the 21st day of August, 1877, obtain new letters patent for the same invention, upon an amended specification, for the residue of the term of seventeen years from the 21st day of November, 1876, which new letters patent were issued in due form of law, under the seal of the Patent Office of the

United States, signed by the Secretary of the Interior and countersigned by the Commissioner of Patents, bearing date the said 21st day of August, 1877, and being reissue number 7850, which said new and reissued letters patent are now remaining of record in the Patent Office of the United States, and as by said last-mentioned letters patent, or a duly authenticated copy thereof, ready in court to be produced if required, will fully and at large appear.

5 And your orators further show that your orator, John Béné, having good and lawful cause, after the issuing of said last-mentioned reissued letters patent, surrendered the same to the Commissioner of Patents, and having made due application therefor, and having in all things complied with the conditions and requirements of the acts of Congress in such case made and provided, did, on the 25th day of March, 1879, obtain new letters patent for the same invention, upon an amended specification, for the residue of the term of seventeen years from the 21st day of November, 1876, which new letters patent were issued in due form of law, under the seal of the Patent Office of the United States, signed by the Secretary of the Interior and countersigned by the Commissioner of Patents, bearing date the said 25th day of March, 1879, and being reissue number 8637, which said new and reissued letters patent are now remaining of record in the Patent Office of the United States, and, as by said last-mentioned letters patent, or a duly authenticated copy thereof, ready in court to be produced if required, will fully and at large appear.

And your orators further show unto your honors that, being as aforesaid vested with the exclusive right aforesaid, your orator, John Béné, put into use and practical operation the aforesaid invention and discovery, and treated, prepared, refined, and bleached hair according to said invention or discovery and said last-mentioned reissued letters patent number 8637, and put thes ame upon the market and made extensive sales thereof, and expended and invested considerable sums of money, and bestowed great labor and trouble in and about said invention or discovery and the carrying out of the business of treating, preparing, refining, and bleaching hair according to the description contained in said last reissued letters patent, and in making the same profitable to your said orator, and made sales thereof to many purchasers at prices which included

6 patent fees and profits for the same, which said patent fees and profits were known to said purchasers thereof to be so included, and has so continued to treat, prepare, refine, bleach, and sell the same down to the commencement of this suit.

And your orators further show unto your honors that since the issue to your orator, John Béné, of said letters patent as aforesaid your said orator has been, down to the date of the license hereinafter mentioned, except for the doings of said defendant, as hereinafter set forth, and of the other wrong-doers in the premises, in the exclusive possession and enjoyment thereof, and that the said right has been and is of great value to your said orator.

And your orators further show unto your honors that since the issuing of the said reissued letters patent number 8637 and on the

4th day of October, 1879, your orator, John Béné, filed his bill in equity, in due form of law, in the office of the clerk of the United States circuit court for the southern district of New York, against your orator, Adolph Grünberg, for an infringement of said letters patent in refining and bleaching hair according to the method and process set forth in said letters patent; that in such suit the defendant interposed an answer denying, among other defenses, the infringement, the validity of the original patent, and of the reissue number 8637; denying that your orator was the first and original inventor, and alleging that the invention and all the material and essential features thereof were fully described and set forth in Ree's Cyclopedia, vol. 17, published in London in 1819, the article under title "Hair," and 9th column of said article; in the Encyclopedia Metropolitana, published in London in 1845. The article under the title "Bleaching," vol. 8, pages 512 to 518, in Mackenzie's Five Thousand Receipts, published in Philadelphia, Pennsylvania, American edition, in 1829, pages 92, 93, 94, and 95.

And in the following English patents: Calvert's patent No.
7 11126, March 11, 1846; Senior's patent No. 11367, 1846; Cooper and Watson's patent No. 87, January 12, 1853.

And alleging further; prior use in this country within the knowledge of many persons named in the answer to said bill, to wit, Simon Goldberg, of No. 44 Essex street; Charles Wittenhauer, of No. 222 Sixth avenue; Max Schneider, of No. 222 Sixth avenue; G. Cassebeer, of 191 Bowery; Louis Rosegnot, of 823 Broadway; E. D. Francois, Jr., of 271 Sixth avenue; E. D. Francois, of No. 293 Sixth avenue; Isidor Meinstick, of 407 Grand street; Robert T. Bellchambers, of 317 Sixth avenue; Jean De Krom, of 92 Second avenue; —— Elliott, of 24 East Fourteenth street; Martial G. Jouffret, of 75 University place; Henry Julien, of 301 Canal street; Peter Wynen, of 106 East Eleventh street; Christian Wynen, of 106 East Eleventh street; Richard Olsen, of 222 Centre street; —— Oppenheimer, of 329 Canal street; Elias Schwartz, of 438½ Broadway.

And your orators further show that issue was duly joined in said suit and testimony taken therein on all the material allegations contained in the bill and answer; that several of the witnesses named in the answer as having knowledge of prior use, to wit, Simon Goldberg, Max Schneider, Louis Rosegnot, and Christian Wynen, were examined on the part of the defendant; that the case was brought to final hearing and a decree entered in favor of your orator, John Béné, establishing the letters patent reissue No. 8637 as good and valid letters patent and declaring your orator, John Béné, to be the first and original inventor and discoverer of the improvements described and claimed therein, and referring the cause to Joseph Gutman, Jr., a master of the court, to take proof of and report profits, damages, etc., which decree is hereto annexed, marked Exhibit A, and which your orators beg leave to make a part of this bill.

Your orators further show that your orator, John Béné, and the said defendant in said cause went before the said master and
8 proof was taken of profits received by defendant, and that said master made and filed his report thereon on the 16th

day of December, 1881, in which he finds that the defendant had received one thousand dollars in profits by means of the said improvements.

And your orator further shows that, no exception being taken to said report, on due application made therefor, a final decree was entered in the cause, a copy of which is hereto annexed, marked Exhibit B, and which your orators beg leave to make a part of this bill.

And your orators further show that after the entry of the said last-mentioned decree, and on the 23d day of January, 1882, the said John Béné, by an instrument in writing of that date duly executed, for a valuable consideration, conveyed to Adolph Grünberg, his assigns and legal representatives, the exclusive license to use and practice the invention described in said letters patent, so far as it relates to the bleaching and refining yak hair and the hair of all other quadrupeds and to sell the same so bleached and refined.

And your orators further show that they are in the full enjoyment of all the rights and interests acquired by them, respectively, as aforesaid, and that said rights and interests have been and are of great value to your orators, and your orators are entitled to all the damages occasioned by the infringement of said letters patent.

And your orators further show, on information and belief, that since the 25th day of March, 1879, the defendant, well knowing the premises and the rights and privileges secured to your orators in and by said letters patent, and of all acts herein recited vesting in your orators the full and exclusive right, title, and interest in the hereinbefore-specified letters patent and the invention secured thereby, did contrive, at the city of New York, State of New York, and southern district of New York, and at other places, to injure your
9 orators and to defraud them of the profits, rights, privileges, and advantages which might and otherwise would have accrued to them; and, without the permission or license of your orators or either of them, since the 25th day of March, 1879, has wrongfully and unlawfully treated, prepared, refined, and bleached hair according to the method set forth and described in the specification annexed to said letters patent, and is now wrongfully and unlawfully treating, preparing, refining, and bleaching hair according to the method set forth and described in said letters patent, and has thereby made and has used, and sold to others to be used, and caused to be made, used and sold to others to be used, hair treated, prepared, refined, and bleached according to the method set forth and described in said letters patent; that the method and treatment employed in treating, preparing, refining, and bleaching hair by the defendant and the article of refined hair so produced by him are substantially the same method and article of refined hair set forth in said letters patent; but what amount of said hair defendant has so treated, prepared, refined, bleached, and used, or sold to others to be used, or caused to be so treated, prepared, refined, bleached, and used, or sold to others to be used, your orators do not know, and cannot therefore state; but, upon information and belief, your orators aver that said defendant has treated, prepared,

refined, bleached, and used, or sold to others to be used, or caused to be treated, prepared, refined, bleached, and used, or sold to others to be used, large quantities of the same, and is now treating, preparing, refining, bleaching, and using, or selling to others to be used, or causing to be treated, prepared, refined, bleached, and used, or sold to others to be used, large quantities of the same; that the said defendant has derived and received and is still deriving and receiving from such treating, preparing, refining, bleaching, use, and sale great gains and profits, but to what extent your orators are ignorant, and cannot therefore set forth; but your orators believe
10 the same, up to this date, to be ten thousand dollars, and so charge the fact to be, and pray that the defendant may be compelled to make discovery of such gains and profits.

And your orators in like manner aver that the defendant continues to treat, prepare, refine, bleach, use, and vend to others to be used, hair treated, prepared, refined, and bleached according to the method described in said reissued letters patent number 8637, so as aforesaid, though warned and requested to desist from such treating, preparing, refining, bleaching, use, and sale, and refuses to pay over to your orators the said gains and profits; by means whereof the defendant has greatly injured and is greatly injuring your orators, and has deprived and is still depriving your orators from receiving the grains and profits from the exclusive right to treat, prepare, refine, bleach, use, and sell hair after the manner set forth, described, and claimed in said letters patent which your orators otherwise and but for the wrongful acts of the defendant would have obtained and received.

And your orators further show unto your honors that they have sustained great damages, to wit, as nearly as they can state the same, the sum of ten thousand dollars by reason of the infringement by the defendant as aforesaid of your orators' rights secured by said letters patent as aforesaid.

All of which actings and doings are contrary to equity and good conscience and tend to manifest injury to your orators in the premises.

In consideration whereof, and forasmuch as your orators can only have adequate relief in this honorable court, where matters and things of this kind are made cognizable, your orators pray that the said defendant may be compelled by a decree of this court to account for and pay over to your orators all such gains and profits as have accrued to or been earned by said defendant, and all such gains and profits as have been received by the said defendant, or to which the said defendant may be entitled by
11 reason of such treating, preparing, refining, and bleaching, use or sale by him of hair treated, prepared, refined, and bleached according to the method or process set forth and described in the specification and claims of said letters patent and in infringement thereof, and all such gains and profits as your orators would have received but for the wrongful and unlawful acts and doings of the said defendant; and also, in addition to the profits to be accounted for by the defendant, that he, the said defendant, may pay the damages

your orators have sustained by reason of such infringement; and that your honors shall assess such damages or cause such damages to be assessed under direction of the court; and that the said defendant, his attorneys, solicitors, agents, servants, and workmen, may be perpetually enjoined and restrained by the decree and injunction of this court from directly or indirectly treating, preparing, or bleaching hair according to the method or process set forth, described, and claimed in said letters patent, or using or selling to others to be used hair treated, prepared, refined, or bleached according to said method or process, and from infringing upon or violating the said letters patent reissued to John Béné on the 25th day of March, 1879, in respect to the said exclusive rights vested in your orators, and that all such hair so treated, prepared, refined, or bleached by the said defendant may be delivered up to your orators and be destroyed, and that the defendant may be decreed to pay the the costs of this suit; and that your orators may have such other and further relief as the equity of the case may require and as to your honors may seem meet.

To the end, therefore, that the said defendant may, if he can, show why your orators should not have the relief prayed for and may full, true, and direct answer make, according to the best of his knowledge, information, and belief, to the several matters hereinbefore named and set forth, as fully and particularly as if the same were here repeated paragraph by paragraph and he especially interrogated thereunto, may it please your honors to grant unto your orators a writ of *subpœna ad respondendum*, issuing out of and under the seal of this honorable court, directed to the said defendant, commanding him to appear and make answer to this bill of complaint and to perform and abide by such order and decree herein as to this court may seem required by the principles of equity and good conscience.

12

And may it please your honors to grant unto your orators a provisional preliminary injunction, issuing out of and under the seal of this honorable court, enjoining and restraining the defendant, his attorneys, clerks, solicitors, agents, servants, and workmen, to the same purport, tenor, and effect hereinbefore prayed in regard to the said perpetual injunction.

And your orators will ever pray.

SAM. TRO. SMITH,
Solicitor for Complainants, and of Counsel,
21 *Park Row, New York.*

J. C. CLAYTON,
Of Counsel, 7 *Warren Street, New York.*

UNITED STATES OF AMERICA,
Southern District of New York, City and County of New York, } ss:

John Béné and Adolph Grünberg, being duly sworn, each for himself deposes and says that he is complainant in the foregoing bill of complaint; that he has read the same and knows the contents

thereof, and that the same is true to his own knowledge, except as to the matters therein stated to be alleged on information and belief, and as to those matters he believes — to be true.

13

JOHN BÉNÉ.
ADOLPH GRÜNBERG.

Subscribed and sworn to before me this 25th day of April, A. D. 1882.

A. JAMES LASKE, [L. S.]
Notary Public, N. Y. Co.

EXHIBIT A.

At a stated term of the circuit court of the United States of America for the second circuit and southern district of New York, on the — day of October, 1881.

Present: Hon. Samuel Blatchford, judge.

JOHN BÉNÉ *vs.* ADOLPH GRÜNBERG.

This cause having been brought to a final hearing on the pleadings and proofs, and Sam. Tro. Smith, Esq., being present as counsel for complainant, and J. C. Clayton, Esq., as counsel for defendant, now, at this term of said court, on motion of Sam. Tro. Smith, Esq., solicitor for complainant, and by consent of J. C. Clayton, Esq., solicitor for defendant, it is found and hereby ordered, adjudged, and decreed, and this court, by virtue of the power and authority in it vested, doth hereby order, adjudge, and decree, that the reissued letters patent numbered 8637, granted March 25, 1879, unto John Béné, the complainant, are good and valid letters patent, being the letters patent referred to in the complainant's bill of complaint; and that the said John Béné was the first and original inventor and discoverer of the improvements described and claimed therein; and also that the said defendant has infringed upon the exclusive rights of the complainant under the said letters patent by refining and bleaching hair according to the method and process described and claimed in said reissued letters patent, and by using and vending hair refined and bleached according to the method described in said reissued letters patent.

14

And it is further ordered, adjudged, and decreed that the complainant do recover of the defendant the profits, savings, gains, and advantages which the said defendant has received or made or which have accrued or arisen to him from said infringement of said letters patent, and, in addition thereto, the damages the complainant has sustained thereby.

And it is further ordered, adjudged, and decreed that it be referred to Joseph Gutman, Jr., one of the masters of this court, to ascertain and take and state and report to the court an account of the gains, profits, savings, and advantages which the said defendant has received since the 25th day of March, 1879, from infringing the said exclusive rights of said complainant, by the refining and bleaching of

hair by means of the method or process patented in said reissued letters patent number 8637, and by using and vending hair refined and bleached by means of the method or process patented in said reissued letters patent No. 8637, and, in addition thereto, assess the said damages the said complainant has sustained thereby.

And it is further ordered, adjudged, and decreed that the complainant, on such accounting, have the right to cause the examination of said defendant, on terms or otherwise, and also the production of the books, vouchers, and documents belonging to him
15 or under his control, and that said defendant attend for such purpose before said master from time to time, as said master shall direct.

And it is further ordered, adjudged, and decreed that a perpetual injunction be issued against the said defendant, according to the prayer of the bill.

(Signed) SAMUEL BLATCHFORD.

EXHIBIT B.

At a stated term of the circuit court of the United States for the southern district of New York, in the second circuit, held at the court-rooms, in the post-office building, in the city of New York, on the 23d day of December, 1881.

Present: Hon. Samuel Blatchford, Judge.

JOHN BÉNÉ *vs.* ADOLPH GRÜNBERG.

This cause having come on to be heard upon the report of Joseph Gutman, Jr., one of the masters of this court, to whom it was referred to ascertain and state and report to the court an account of the gains, profits, savings, and advantages which the said defendant has received since March 25, 1879, from infringing the exclusive rights of the said complainant by refining and bleaching hair according to the method and process described and claimed in complainant's reissued letters patent No. 8637, set forth in said com-
plainant's bill of complaint, and by using and selling hair
16 so bleached and refined, and in addition thereto to assess the damages the said complainant has sustained thereby, which report bears date December 16, 1881:

It is ordered, adjudged, and decreed, and this court, by virtue of the power and authority therein vested, doth order, adjudge, and decree, that the defendant has made and received one thousand dollars profit by reason of infringing the exclusive rights of the complainant under his reissued letters patent No. 8637, set forth in his bill of complaint, and that said defendant pay to the complainant herein the said sum of one thousand dollars.

And it is further ordered, adjudged, and decreed that the said defendant pay to the said complainant his costs in this suit, to be taxed herein.

And it is further ordered, adjudged, and decreed that the said complainant have execution for such costs, to be taxed as aforesaid,

and the sum above decreed to be paid to the said complainant as aforesaid.

SAMUEL BLATCHFORD.

(Endorsed:) U. S. circuit court, southern district of New York. John Bene & Adolph Grunberg *vs.* Emile Jeantet. Bill. Sam. Tro. Smith, sol. for complainant. U. S. circuit court. Filed Ap'l 24, 1882. Joseph M. Deuel, clerk.

Defendant's Answer.

U. S. Circuit Court. In Equity.

JOHN BÉNÉ and ADOLPH GRÜNBERG *against* EMILE JEANTET.

The answer of Emile Jeantet, the above-named defendant, to the bill of complaint of John Béné and Adolph Grünberg, the above-named complainants.

This defendant, now and at all times hereafter, saving and reserving unto himself all manner of benefit and advantage of exception which can or may be had or taken to the manifold errors, uncertainties, insufficiencies, and imperfections in complainants' said bill of complaint contained, for answer thereto or unto so much or such parts thereof as this defendant is advised it is material or necessary for him to make answer unto, answering, says:

17

That as to whether said complainant, John Béné, put into use and operation the invention and discovery alleged in said bill, and put upon the market and made extensive sales of hair treated in manner referred to in said bill, this defendant has no knowledge and is not informed, save and except by complainants' bill, nor as to whether or not said Béné expended and invested considerable sums of money in and about said alleged invention, and therefore this defendant neither admits nor denies the same, but leaves the said complainants to make such proof as to these several matters as he may be advised.

And this defendant, further answering, denies that he has at any time or at any place infringed upon any legal or equitable right or rights of the complainants as to the letters patent mentioned in the complainants' bill herein, and denies that he has treated, prepared, refined, and bleached or is now treating, preparing, refining, and bleaching any hair according to the method set forth and described in the specification annexed to said letters patent, or that he has employed any method substantially the same, and denies that he has so made and used or has sold to others to be used or has caused to be made, used, and sold to others to be used, hair treated, prepared, refined, and bleached in the method aforesaid.

And this defendant further denies that he has ever continued to injure said complainant or to deprive him of gains and any profits, benefits, and advantages whatever, as charged in the bill of complaint.

Wherefore defendant denies the right of this complainant to the relief prayed against him in the bill of complaint.

18 All which matters and things the defendant is ready, willing, and anxious to aver, maintain, and prove as this honorable court shall direct, and he humbly prays that he may be hence dismissed with his reasonable costs and charges in this behalf most unjustly and inequitably sustained.

And will ever pray, &c.

E. JEANTET.

WILLIAM P. S. MELVIN,
Solicitor and of Counsel for Def't,
407 Broadway, New York City.

UNITED STATES OF AMERICA,
Southern District of New York, } ss:

Emile Jeantet, being duly sworn, says that he is the defendant named in the foregoing answer subscribed by him; that he has read the same and knows the contents thereof, and that the same is true to his own knowledge, except as to the matters therein stated to be alleged on information and belief, and as to those matters he verily believes it to be true.

E. JEANTET.

Sworn to before me this 3d day of August, 1883.
[L. S.] JOHN J. V. BURKE,
Notary Public, N. Y. County.

(Endorsed:) U. S. circuit court. In equity. John Béné *et al.* *vs.* Emile Jeantet. Answer. Wm. P. S. Melvin, sol. for def't, 407 Broadway, N. Y. city. U. S. circuit court. Filed Aug. 3, 1883. Timothy Griffith, clerk.

19 *Complainants' Replication.*

United States Circuit Court, Southern District of New York. In Equity.

JOHN BÉNÉ and ADOLPH GRÜNBERG *vs.* EMILE JEANTET.

The replication of John Béné and Adolph Grünberg, complainants in this cause, to the answer of this defendant, Emile Jeantet.

These repliants, saving, securing, and reserving to themselves now and at all times hereafter all and all manner of benefit and advantage of exception which may be had or taken to the manifold insufficiencies of the said answer, for replication thereto say that they will aver, maintain, and prove their bill of complaint to be true, certain, and sufficient in law to be answered unto, and that the said answer of the said defendant is uncertain, untrue, and insufficient to be replied unto by these repliants—

Without this, that any other matter or thing whatsoever in the

said answer contained material or effectual in the law to be replied unto and not herein replied unto, confessed and avoided, traversed or denied, is true; all which matters and things these repliants are and will be ready to aver, maintain, and prove as this honorable court shall direct, and humbly pray as in and by their bill they have already prayed.

Dated August 25th, 1883.

SAM. TRO. SMITH,
Solicitor for Complainants and of Counsel.

(Endorsed:) U. S. circuit court, so. dist. of New York. In equity. John Béné and Adolph Grünberg *vs.* Emile Jeantet. Replication. Sam. Tro. Smith, solicitor for complainants, 291 B'way, N Y. city. U. S. circuit court. Filed Sept. 4, 1883. Timothy Griffith, clerk.

20 *Notice of Taking Testimony.*

U. S. Circuit Court, Southern District of New York. In Equity.

JOHN BÉNÉ and ADOLPH GRÜNBERG *vs.* EMILE JEANTET.

To Wm. P. S. Melvin, Esq., solicitor for defendant:

Take notice that on the 20th day of September inst. I shall proceed under the 67th rule, as amended, to take testimony on the part of the complainant herein, to be used on the final hearing of this cause, before a proper officer, at my office, at No. 291 Broadway, New York city, at 11 o'clock in the forenoon, and that you are invited to attend and cross-examine the witnesses.

Yours truly,
SAM. TRO. SMITH,
Solicitor for Complainants.

Dated Sept. 10th, 1883.

Service of within notice admitted the 11th day of Sept. 1883.
WM. P. S. MELVIN,
Def't's Solicitor.

21 *Complainants' Testimony.*

United States Circuit Court, Southern District of New York. In Equity.

JOHN BÉNÉ and ADOLPH GRÜNBERG *vs.* EMILE JEANTET.

Depositions of witnesses to be used at final hearing in this cause upon the part of complainants, taken before the undersigned, notary public, duly commissioned and qualified, and special examiner by consent, pursuant to annexed notice, dated September 10th, 1883.

And now, on this 27th day of September, A. D. 1883, at 291 Broadway, New York city, N. Y., duly appears counsel for complainant, Sam. Tro. Smith, Esq., and the counsel for defendant, Wm. P. S. Melvin, Esq.; and the counsel for complainants first called as

a witness in his own behalf JOHN BÉNÉ, who, being first duly sworn, testified as follows, viz:

1 Q. What is your name, age, residence, and occupation?

A. John Béné; aged 44; reside — 314 Pearl street, Brooklyn, N. Y.; am a dealer in human hair and refiner and bleacher in human and other hairs; also manufacturer of peroxide of hydrogen. I do business at 279 Fulton street and 1 to 5 Tillery street, Brooklyn, N. Y.

2 Q. Will you look at the paper now shown you and state whether you are the same John Béné named herein?

A. I am the one.

22 (Paper, reissued letters patent No. 8637, United States, offered in evidence and marked "Complainants' Exhibit 1, Béné Letters Patent, Sept. 27, 1883, J. H. H., notary and Spec. Ex'r.")

(It is hereby consented by counsel for defendant that a printed copy of the aforenamed exhibit may be substituted and used in this cause in its place and stead with like force and effect.)

3 Q. Will you state whether you proceeded to refine and bleach hair under the descriptions contained in these letters patent, Complainants' Exhibit 1 of this date; and, if so, at about what time?

A. I did, in about 1875, when I made my application for a patent.

4 Q. How long did you continue so to do?

A. From that time until the present day.

5 Q. To what extent?

(Objected to as immaterial.)

A. Pretty largely.

6 Q. How many hands have you had in your employ?

(Same objection as to Q. 5.)

A. From ten to fifty.

(Cross-examination of witness suspended and reserved by consent to next session.)

Deposition of Jean R. Krause.

JEAN R. KRAUSE, being called on behalf of complainants and interrogated by counsel, testifies as follows, viz:

1 Q. What is your name, age, residence, and occupation?

A. Jean R. Krause; age, 34; reside — 213 E. Houston street, New York city, N. Y.; am by occupation ladies' hair-dresser and wig-maker.

23 2 Q. Do you know the parties to this suit or either of them?

A. Yes; both.

3 Q. Will you look at the paper now shown you and state what you know about it?

A. I recognize this bill, which I received from the party when I bought these goods stated in this bill.

4 Q. What party do you mean?

A. E. Jeantet, the party in 123 W. 15th street, New York city, N. Y.

5 Q. Do you mean Mr. Jeantet now present and the defendant named in this suit?

(Objected to as leading.)

A. Yes.

6 Q. Who gave you that bill?

A. Mr. Kemple, who was present in Mr. Jeantet's place when I bought the bill.

7 Q. Did you purchase any goods of Mr. Jeantet at that time; and, if so, what?

A. Yes; it was one pound 3½ ounces refined Chinese hair, known under the name of "Georgian hair."

8 Q. Will you look at the article now shown you and state whether or not it is a portion of the hair purchased by you at that time?

A. It is.

(Bill identified by witness now offered in evidence and marked "Complainants' Exhibit 2 Krause, Sept. 27th, 1883, J. H. H., notary public and Spec. Ex'r.")

(Objected to as immaterial and incompetent.)

(Also the article shown to witness, being three bunches of hair, offered in evidence by counsel for complainants and marked "Complainants' Exhibit 3 Krause, September 27, 1883, J. H. H., notary public and Spec. Ex'r.")

24 (Objected to same as to the previous exhibit.

Further examination of witness and hearing adjourned by consent to October 1st, 1883, 2 p. m.

J. HOMER HILDRETH,
Notary Public and Spec. Ex'r.

NEW YORK, *October 1st*, 1883.

Met pursuant to adjournment.

Present: Counsel as before.

Direct examination of witness KRAUSE resumed:

9 Q. How many bunches were there in the lot of hair you purchased at Mr. Jeantet's when you got the bill, Complainants' Exhibit No. 2 Krause?

A. Eight.

10 Q. When was Complainants' Exhibit No. 3 Krause separated from the remainder of said package of hair?

A. They were separated the last time I was here at this hearing; if I mistake not, it was Thursday last.

11 Q. Where was it so separated?

A. In Mr. Smith's office. I mean complainants' counsel.

12 Q. By whom?

A. By Messrs. Béné and Smith, in my presence.

13 Q. What, if you know, has become of the remaining 5 bunches?

A. It was left in Mr. Smith's hands. I recognize the 5 bunches now shown me as the bunches of hair so separated from the three in the original package.

(Counsel for the complainants calls the attention of defendant's counsel to the witness' last answer, and to the 5 bunches of hair which he now produces in court, and asks the examiner to mark Complainant's Exhibit Krause for identification, as constituting, with Exhibit No. 3 Krause, the 1 lb. 3½ ozs. of hair named in the bill, Exhibit No. 2 Krause, J. H. H., N. P. and Spec. Ex'r.)

14 Q. What was Mr. Kemple doing at Mr. Jeantet's store when you purchased the hair named in bill, Complainants' Exhibit 2 Krause?

A. He was attending to the business, standing behind the counter.

15 Q. You say Mr. Kemple gave you the bill. Please state the circumstances; how he came to give you the bill and in whose handwriting it is.

A. I asked for refined Chinese hair, so-called Georgian hair. Mr. Kemple weighed it off, and I told him to send it to my house, when I paid C. O. D. for it. He did send the goods and the bill to my house. The bill, Complainants' Exhibit 2 Krause, is in Mr. Kemple's handwriting.

16 Q. Was Mr. Jeantet present or not when you bought the goods?

A. I did not see him.

17 Q. At what time was the purchase made?

A. On the 16th of June, 1882. The bill bears the same date.

And, being cross-examined by counsel for defendant, witness testifies:

18 X Q. Mr. Krause, you bought all the hair—that is, 1 lb. 3½ ozs.—on the 16th of January, 1882, did you not?

(Showing witness the bill, Complainants' Exhibit 2 Krause.)

A. I did.

19 X Q. Then you were mistaken in stating it was June?

A. I was mistaken.

20 X Q. When you purchased the hair you saw only the clerk, Mr. Kemple?

A. Yes, sir.

21 X Q. What conversation did you have with Mr. Kemple? State it fully and in the order in which it occurred.

A. I asked him for Georgian hair and he sold it to me. It would be impossible for me — state all that either one of us said then.

22 X Q. Can you state anything that was said, in the language that was used on that occasion?

A. I can.

23 X Q. State it.

A. I said to him: I find the price too high. He said if I wanted it at that price I could get it; if not, I should leave it.

24 X Q. Did you tell him what you wanted the hair for?
A. I did not.
25 X Q. What was your business at that time?
A. Ladies' hair-dresser and wig-maker, the same as it is to-day.
26 X Q. Did you go to Mr. Jeantet's for the purpose of buying hair?
A. I did.
27 X Q. What did you want the hair for?

(Objected to as not in cross-examination and immaterial.)

A. I wanted the hair to use up for the purpose of my business.
28 X Q. Did you use it in your business?

(Same objection as to X Q. 27.)

A. Not at the present.
29 X Q. When did you deliver that hair to Béné?

(Same objection as to 27 X Q., and also as assuming that he did deliver it to complainant.)

A. I delivered that hair to Mr. Béné the same day as I got it, as he was just present in my store when it came.
30 X Q. Was he at your place of business for the purpose of receiving this hair as it came?

(Same objection as to 27 X Q.)

A. He was not there for the purpose to receive the hair.
31 X Q. What time of day did you go to Jeantet's place?
A. After dinner.
27 42 X Q. Did you see Béné that day before going?
A. I did not.
33 X Q. What time in the day was the hair delivered to your place?
A. Between six and seven o'clock at night.
34 X Q. Your place was in East Houston street, was it?
A. 213 East Houston street.
35 X Q. Béné lived in Brooklyn, did he not?
A. He does.
36 X Q. After going to Jeantet's place and ordering the hair, did you send word to Béné?

(Same objection as to 27 X Q.)

A. I did not. I do not do no spy business for anybody for money.
37 X Q. How came Béné to be at your place, if you know?

(Same objection as to 27 X Q.)

A. Mr. Béné came quite often to my place, as we do business together.
38 X Q. Was Béné's presence at your place of business that evening purely accidental?

(Objected to same as 27 X Q., and also as being a question which the witness cannot possibly answer, from the nature of things.)

A. He came about a business matter.

39 X Q. On what business matter did come?

(Same objection as to 27 X Q.)

A. He asked about such and such goods which he has got to sell for me.

40 X Q. Was the hair rolled up when it was brought to your place?

A. I untied it when the clerk came to collect his money; I untied it to see what I had got.

41 X Q. Was Béné there when you untied it?

A. He was not there.

28 42 X Q. Did you state a little while ago that Béné was there when the hair came?

A. I did not.

43 X Q. How soon after the arrival of the hair did Béné come to your place?

A. I can't state the time exactly.

44 X Q. Was it within an half hour?

A. I told you before I can't state the time.

45 X Q. Was it within two hours?

A. It was between seven and ten, that is sure, because at ten I close the store, and it was between six and seven I received the goods. I told you before I could not say exactly sure.

46 X Q. After going to Jeantet's and ordering the goods, did you see Béné until he came to your store in the evening?

(Objected to same as 27 X Q.)

A. I did not.

47 X Q. Who brought the goods—the hair?

A. Mr. Jeantet's employé.

48 X Q. How do you know he was an employé?

(Same objection as to 27 X Q.)

A. I know he was in Mr. Jeantet's employ, because he was the same man that he had to identify him at the bank when he went to draw money; that is how I am sure of the man.

49 X Q. Did you pay that employé $11.58 at that time?

A. I did pay him the receipted bill which I received.

50 X Q. How long did Béné remain at your place that night?

(Objected to same as 27 X Q.)

A. Probably half an hour.

51 X Q. When he went did he take the hair with him?

A. Mr. Béné see- the hair laying on the counter, asked me

29 where I got it from; recognized it as an infringement of his patent, and asked me to give him the hair and bill and he would return it to me in a few days; it is in the lawyer's hands to-day; I have not got it yet.

(Objected by defendant's counsel as not responsive.)

52 X Q. Did he pay you that night for the hair—the $11.58?
A. I did not sell this hair; this hair belongs to me.

(Same objection by counsel for defendant as to answer to 51 X Q.)

53 X Q. Have you ever been repaid the $11.58?
A. From who? I did not sell the goods; they belong to me.

(Same objection by counsel for defendant as to 51 X Q.)

54 X Q. Has the hair been out of your possession ever since the night you delivered it to Béné?
A. It has been out of my place, but I recognize it to-day as the same hair which I received from Mr. Jeantet.

(Objected to by counsel for defendant, as to latter part of answer, same as answer to 51 X Q.)

55 X Q. Have you seen the hair since January 16, 1882, until you came to attend this examination?
A. I have seen it.
56 X Q. When?
A. I have seen it when Mr. Graff settled with Mr. Béné; I mean Graff Brothers; I saw it in Mr. Smith's office; I did not see it elsewhere.
57 X Q. How came you to be at Mr. Smith's office at the Graff settlement?

(Objection same as to 27 X Q.)

30 A. Mr. Graff invited me to come down and be a witness at the settlement.
58 X Q. You speak in your examination of the division or separation of the hair; take the hair and tell us what was its condition when you received it on the 16th day of January, 1882.
A. It was in the same condition, except that the bundles were bundled in one bunch.

Adjourned by consent to October 4, 1883, 2 p. m.

J. HOMER HILDRETH,
Notary Public and Spec. Ex'r.

NEW YORK, *Oct.* 4, 1883.

Met pursuant to adjournment.
Present: Counsel as before.

Cross-examination of witness KRAUSE resumed:

59 X Q. Was the hair in seven bundles when it was delivered at your store—I should say bunches?
A. It is in the same condition as when I received it; I cannot remember the bunches now, exact.
60 X Q. Was it in six or seven distinct bunches, each bunch bound up by itself, when you received it?

(Objected to as assuming that the hair was put up in either six or seven bunches, which is not true, as counsel knows, he having heard

the witness testify that it was put up in eight bunches, and having seen the hair so put up and had it in his hands, and counsel for complainant protests against this method of misleading a witness by assuming things which are false in putting questions.)

A. It was bundled up in so many packages as you see here—eight in all; each bunch was tied separately, as you now see them.

31 61 X Q. Was the eight bunches tied together in one bundle at that time?

A. They were.

62 X Q. Now, what is the material with which the bunches are tied? Look at it.

A. Cords.

63 X Q. Is there anything peculiar in the character of that cord?

A. There is nothing very particular in it.

64 X Q. Isn't it a very common colored cord?

A. It is not so very common.

65 X Q. Is it uncommon cord?

(Objected to by complainants' counsel as immaterial, except it may be for the purpose of identification, and defendant's counsel is notified that the witness is not relied upon to prove identification.)

A. It is imported cord.

66 X Q. Same as 65 X Q.?

A. I don't know what to understand by that.

67 X Q. Is it cotton or silk cord?

(Objected to as assuming what is not true.)

A. I am no judge of cord.

68 X Q. You have had a good deal of experience in hair?

A. I have.

69 X Q. Is there anything peculiar in the color of that hair?

A. All the Georgian hair comes in different shades, but this bundle—this quantity is all light shades—as I want to use it in my business for light wigs.

(Latter part of answer is objected to by defendant as irresponsive.)

70 X Q. Now, did you say, in answer to that last question, that all Georgian hair looks alike?

A. I did not say that.

71 X Q. Did you not say that all Georgian hair comes in different colors and looks alike?

A. It comes in different colors.

32 72 X Q. Did you add to the statement before that all Georgian hair comes in different colors and looks alike?

A. No.

73 X Q. Did you say that this was imported cord on these bunches?

A. It seems to be imported cord.

74 X Q. What do you mean by Georgian hair?

A. Refined Chinese hair.

75 X Q. Where is it refined—in this country—or where is it exported from?

(Objected to unless the witness can state of his own knowledge.)

A. It is hard to tell whether it is refined here or in Europe.

76 X Q. Was the cord off of one of these bunches of hair when you were examined here the other day in this office?

A. It went off in my presence.

77 X Q. Has it been put on since?

A. Yes; it has been put on again.

(Witness examines each bundle.)

78 X Q. Do you know who put it on?

A. I ain't sure who put it on.

79 X Q. Do you think you saw Mr. Smith put it on?

A. It might be, because the hair came loose.

80 X Q. Have you seen a great deal of hair of these shades?

A. Not so many.

81 X Q. When the hair is refined abroad is it tied up in this manner before importation?

(Objected to as assuming that the witness knows how hair is put up before importation.)

A. All the hair has got to get tied up.

82 X Q. Witness, what is there about the hair, either in the hair itself or the manner of fastening it, that makes you think it is the hair you ordered from Jeantet?

33 A. It is the hair itself; it is the refined Georgian hair.

83 X Q. What do you mean by refined Georgian hair?

A. Refined Chinese hair.

84 X Q. Do you know anything about the system of refining?

A. I do.

85 X Q. What is the system—the process, rather?

(Objected to as to 27 X Q., and counsel for defendant is notified that if he persists in this course of examination the complainants' counsel will insist at the hearing that he has made the witness his own and will be bound by his answers.)

A. The process is acids—chloride of lime; these are about the principal parts of it.

86 X Q. Do you mean chloride of lime or lime of chlore? You used both terms.

A. I do not understand the terms. I mean lime of chlore, I think.

87 X Q. Since you were examined on Monday last, have you had any conversation about this case or your testimony with Mr. Béné or with Mr. Smith, his counsel?

A. I asked him if I am soon out of this position.

88 X Q. Who did you ask?

A. I asked both, in the office.

89 X Q. Have you to-day conferred with Mr. Smith and Mr. Béné about this case?

A. I did not.

90 X Q. Have you been closeted with them to-day?

A. I found the door closeted when I came in.

91 X Q. How does Georgian hair differ from other hair of the same coarseness or texture?

A. Through the shine, feelings, and any business man handling hair will tell you at once the difference from other hair.

34 (Part of answer objected to as irresponsive.)

92 X Q. What is the difference in shine between Georgian and other hair of the same coarseness and texture?

A. You exclude human hair not refined?

(Counsel for defendant says, "I can't tell whether I do or not.")

93 X Q. You stated there is a difference between Georgian and other hair of the same texture. I want to know whether the other hair is human or animal hair.

A. It is human hair.

94 X Q. Is Georgian hair human hair?

A. Georgian hair is women's and men's hair.

95 X Q. What is the difference between Georgian and other human hair of the same coarseness, in respect to the shine of which you spoke?

A. The difference lays in the refining and coloring, as far as I know.

96 X Q. Is this human hair produced by the complainants?

(Counsel refers witness to Complainants' Exhibits 3 Krause and Krause for identification.)

(Counsel for complainants object as to 27 X Q., and again insists that defendant's counsel has made the witness his own, complainants' counsel not having produced him as an expert for any purpose.)

A. It is refined Chinese hair.

And, being examined by counsel for complainant on redirect, witness testifies:

35 97 R. D. Q. In your answer to Q. 17 you stated that the purchase of the hair in question was made on the 16th day of June, 1882, the bill bearing the same date. In answer to the next question you state the date as the 16th of January, 1882, and in answer to 19 X Q. you state you were mistaken in stating it was June. Will you explain how that mistake of yours occurred?

(Objected to as immaterial, and as having been already corrected on cross-examination, and that the question states untruly the testimony in that respect.)

A. I had to state the date. I had to take the bill, and by this action I thought that "January" meant "June." I made a mistake by looking at the bill, and read "January" for "June."

Witness refers to Complainants' Exhibit 2 Krause.

JEAN R. KRAUSE.

Taken, reduced to writing, subscribed, and sworn to before me this 4th day of October, 1883.

J. HOMER HILDRETH,
Notary Public, N. Y. County, and Special Examiner by Consent.

Adjourned by consent for further hearing to October 11th, 1883, 2 p. m.

J. HOMER HILDRETH,
Notary Public and Spec. Ex'r.

OCTOBER 11, 1883.

Met pursuant to adjournment.

Hearing further adjourned by consent to October 26th, 1883, 1 p. m.

N. Y., *October 26th*, 1883.

Met pursuant to adjournment.

Present: Counsel as before.

Examination-in-chief of witness BÉNÉ resumed by counsel for complainants:

36 8 Q. Look at the paper now shown you and state what it is.

A. It is an agreement and license that I sold to Adolph Grünberg in 1881.

(Paper offered in evidence by counsel for complainants and marked Complainants' Exhibit Béné to Grünberg, Oct. 26, '83, J. H. H., notary public and Spec. Ex'r.)

(Objected to as immaterial by counsel for defendant.)

9 Q. Will you look at Complainants' Exhibit No. 3 and state what you know about it?

A. I went to Mr. Krause's about two years ago. I found this package, Exhibit 3, and some more with it in one package. I took the package and looked at it. I asked him if he had the bill for it. He showed me a bill. He took the hair and brought it up to Mr. Smith's office. He is my solicitor.

10 Q. How came the hair in its present condition, if you know?

A. I opened it before Mr. Smith and Mr. Krause, the first day of this examination, and put or divided it into two bundles. In one bundle I put three bunches and the other five bunches of hair.

11 Q. What was then done with this bundle of three bunches—Exhibit 3?

A. It was shown—put in evidence.

12 Q. What did you do with the other bundle of 5 bunches?

A. I left it in Mr. Smith's—my solicitor's—care.

13 Q. Are you familiar with hair, refined and unrefined?
A. Yes, sir; I have been engaged in the hair business about twenty years.
14 Q. Will you state what the hair in Exhibit 3 is?
A. It is refined, bleached Chinese and Japanese hair.

And, being cross-examined, witness testified:

37 15 X Q. What time of day was it you went to Mr. Krause's establishment?
A. Somewhere around in the evening. I could not state the exact time.
16 X Q. Was it after dark?
A. I don't remember.
17 X Q. Where was the package when you went in?
A. Lying on the show-case.
18 X Q. Was it wrapped up?
A. There was a little paper on it, but it was not tight wrapped up.
19 X Q. Was the contents of the bundle visible when you saw it lying on the counter?
A. Yes, sir.
20 X Q. Did you ask Krause to open it or show it to you?
A. Yes, sir.
21 X Q. And did he remove the paper and display the hair?
A. Well, he removed the paper, but did not take it off; he left the bundle just as it was.
22 X Q. Did he take the hair out of the paper?
A. He did not; he left it on the paper.
23 X Q. How large was the package when you saw it there first?
A. It was a small package.
24 X Q. Not as long as Exhibit 3?
A. It was about as long, because I took it up and laid it down again.
25 X Q. Then, the hair was rolled up in a paper bundle, and not doubled, folded, or coiled?
A. It was lying loose in a paper; you could see it plain; it was not tied up. I did not take notice as to its form.

Adjourned by consent to Oct. 30, 1883, 1 p. m.
J. H. HILDRETH,
N. P. and Spec. Ex'r., by Consent.

N. Y., *October* 30, 1883.

Met pursuant to adjournment.
Present: Counsel as before.

38 Cross-examination of complainant BÉNÉ resumed:

26 X Q. How long have you been engaged in refining or dealing in hair?
A. I have been in the hair business somewhere around twenty years, and in refining about—I started in 1876. I practiced some time before that.

27 X Q. Where were you born?
A. I was born in Alsace, now Germany.
28 X Q. What year did you come to the U. S.?
A. In the year 1857 or 1858; I am not now positive.
29 X Q. Where were you educated?
A. Principally in my fatherland, where I came from.
30 X Q. What sort of a school were you educated in?
A. French and German school—in the common schools
31 X Q. When and where did you study chemistry, if ever?
A. I learned it all by my own head and by my own experiments. I never studied it in school or with a teacher.
32 X Q. When did you commence your chemical investigations?
(Objected to as assuming what is not shown.)
A. I started practice when I went in business. I experimented with hair when I went into business. I never studied chemistry or learned it except by experiments.
33 X Q. Do you mean to be understood that you ever studied chemistry at all from a book, whether at home or in school?
A. No, sir.
34 X Q. Did you say in your direct examination that you were a manufacturer of peroxide of hydrogen?
A. Yes.
35 X Q. How is peroxide of hydrogen manufactured or made?
39 A. I employ a chemist. I know how it is made. I look at my chemist sometimes, but I can't remember exact.
36 X Q. Could you take any chemical agents and, putting them together, manufacture peroxide of hydrogen?
A. No, sir.
37 X Q. Then you do not know what chemical agents enter into the manufacture of peroxide of hydrogen?
A. Some I know and some I don't know.
38 X Q. What chemical agents do you know which enter into its manufacture?
A. I can't state them, as I don't manufacture it myself.
39 X Q. Have you made hair a study; if so, how long?
A. I have studied it a long time and experimented, but I could not state the time now.
40 X Q. Your process, I understand, refines hair, as you claim, does it?
A. Yes, sir.
41 X Q. Do you claim that you can take coarse hair and make it finer by your mode?
A. Yes, sir.
42 X Q. How is that done?
A. Through or with acids and chlorine salts.
43 X Q. Are these acids and salts corrosive?
A. I don't know what that word means.
44 X Q. Is it the effect of these acids and salts to eat away or consume a portion of the hair, and thus lessen it in size?

(Objected to as being a question requiring the knowledge of a chemical expert to answer, and as witness has not stated that the acids or salts produce the effect of refining the hair.)

A. If it is properly done——

45 X Q. Is it the effect of the use of these acids and salts, according to your process, to corrode or consume a portion of the hair, and thus lessen it in size?

A. What is the meaning of the word corrode?

(Counsel for defendant replies to gnaw or eat away.)

Witness continues: It, the process, refines it—makes it finer.

46 X Q. Do you mean it makes the hair smaller in size?

A. Yes, sir.

47 X Q. How does it make it smaller in size?

A. I don't know.

48 X Q. Do you state in your specifications that it reduces the hair in size as a candle is reduced in size by dipping it in warm water and pulling it out?

A. I don't remember now.

49 X Q. Do you remember of employing the candle illustration anywhere in describing your method of refining hair?

A. I can't remember.

50 X Q. Have you ever made hair the subject of study specially?

A. I can't give an answer to that question.

(Counsel for complainant states on the record that no claim is made in this suit for the bleaching of hair, except as the bleaching may result incidentally from the process of refining.)

51 X Q. Does not your process of treating hair with acids and salts, and thus lessening it in volume, also destroy the texture of the hair and impair its strength?

(Objected to as being an expert question as to the destruction of texture, which the witness cannot be expected to understand.)

A. As much as I know, it makes it smaller in size and makes it weaker.

41 52 X Q. What is the form of the hair; is it round, or square, or flat, or three-cornered?

(Objected to as being self-evident to the observation of everybody.)

A. I don't know; I never examined it.

53 X Q. Is it a tube; is it hollow or whole?

A. I don't know.

54 X Q. Is its surface smooth or barbed?

A. It is not smooth, as you can tell the natural hair by the feeling, by working it with your fingers?

55 X Q. Is it barbed—I mean has it a little beard on it?

A. I don't know what barbed means, or beard either, on the hair.

56 X Q. Can you take a hair in its ordinary state and by feeling tell which end of the hair contains the roots?

A. Yes, sir; when it is clean.

57 X Q. By drawing it between your fingers in one direction it will appear smooth, while drawing it in the other direction it will appear rough, will it not?

A. Yes; that is, if it is not refined.

58 X Q. Now, when hair has been subjected to your mode of treatment in an acid and salt bath, by which its size is lessened, will not that natural roughness be taken away from the hair?

A. Yes, sir.

59 X Q. Is there any difference between animal and human hair in the natural state, in reference to producing that roughness?

A. I don't know, as I never took notice of animal hair.

60 X Q. Does all human hair in its natural state produce that roughness of which you speak?

A. Yes, sir; to my knowledge.

Adjourned to November 2, 1883, 11 a. m., by consent.

J. H. H.,
N. P. and Spec. Ex'r.

42 NEW YORK, *Nov. 2d*, 1883.

Met pursuant to adjournment.

Present: Counsel as before.

The right to further cross-examination reserved by consent.

Witness, being thereupon examined in redirect by complainant's counsel, testified:

61 R. D. Q. In your answer to cross-question 21, as to where you studied chemistry, you said: "I learned it all by my own head;" what did you mean by that?

A. I meant in refining and bleaching Chinese or Japanese hair. I learned that, the refining and bleaching, by my own head.

62 R. D. Q. In your answer to cross-question 32, as to when you commenced your chemical investigations, you said: "I started practice when I went in business;" what did you mean by that?

A. I started practice in refining hair.

63 R. D. Q. Will you state the nature of your experiments in bleaching and refining hair which you now refer to?

A. When I was a boy I used to sprinkle cloth, and I saw them using chlorine salts, such as cloride of lime and chlorate of potash, and I found that it bleached the cloth very quick; so when I went in the hair business, about twenty years ago, white and light hair was a very scarce article and very expensive. I started experimenting with chlorine salts and acids for bleaching purposes—bleaching hair lighter. I took Chinese hair, prepared a bath first, put the Chinese hair in it; after awhile took it out and found some of the hair dissolved. I washed it and cleaned it, and found it was a great deal smaller in size and a good deal lighter in color; then I kept up my experimenting till I had the right quantities of chlorine salts and acids that made the hair satisfactory to use.

43 64 R. D. Q. Were these experiments what you referred to when you said you commenced practice?

A. Yes.

65 R. D. Q. About when did you apply for your patent?

A. I paid my solicitors the fees in January, 1875; the application was not in fact filed until May, 1876.

66 R. D. Q. You have stated in your examination that you were a manufacturer of peroxide of hydrogen. Will you state more fully what you mean by that and how you happened to go into that business?

(Objected to as already answered and irrelevant.)

A. I used a good deal of peroxide of hydrogen in my own business—hair business; it was very expensive and sometimes hard to get, so I employed a chemist to do the work. I buy the materials now—supply the market—as I found there was demand in the market among hair men, so I sell it largely.

67 R. D. Q. In your answer to cross-question 39, viz: "Have you made hair a study?" you said, "I have studied it a long time." Will you explain what you meant by that answer?

A. I meant I had worked the hair up in the business, as we always had new styles.

68 R. D. Q. In your answer to cross-question 50, viz: "Have you ever made hair the subject of study specially?" you say, "I can't give an answer to that question." Please state why you could not give an answer to that question.

A. Because I did not understand what the question meant.

69 R. D. Q. In your answer to question 14 you say that the hair in Exhibit 3 is "refined bleached Chinese and Japanese hair." Will you explain what you mean by that answer?

A. I mean that it is refined and bleached in Europe—that
44 is, the Chinese or Japanese hair; it comes in bundles in different colors, imported to this country; sometimes it is Japanese, sometimes it is Chinese, and sometimes it is mixed in its original state.

70 R. D. Q. Do you understand the English language perfectly, or do you have trouble in knowing the exact meaning of words?

A. I do not understand it thoroughly, exactly, as there is a great deal—a great many words I mix up the one for the other and don't know the difference. I frequently use "and" or the word "or" for the same meaning.

71 R. D. Q. Exhibit No. 2 purports to be a bill of "Georgian hair." Will you state what Georgian hair is as found in the market?

A. Georgian hair is refined and bleached Chinese or Japanese hair; it's refined and bleached in Europe and imported into the market under the name of "Georgian hair."

72 R. D. Q. How long has such Georgian hair been imported to this country?

A. About four or five years, so far as I know.

73 R. D. Q. What is the value of Chinese and Japanese hair in its natural state as imported to this country, if you know?

(Objected to as not an expert on such subject.)

A. From 75 cents a pound to $2 per pound.

74 R. D. Q. What is and has been its value after having been refined and bleached by your process?

A. About five years ago it was from $12 to $15 in value per pound, on an average; now it averages $5 or less per pound.

75 R. D. Q. Had Chinese and Japanese hair any value as an article for ladies' toilet before it could be refined and bleached?

A. It had no value, as it's too coarse and stiff to use for any toilet purpose.

76 R. D. Q. When refined and bleached has it any value, and how extensively is it used for toilet purposes?

45 A. It's used very largely, to a very large extent. There is a large demand for it in the market, such as switches, braids, and other toilet purposes—wigs for ladies' wear. It has value as stated in my answer to 74 R. D. Q.

Adjourned to Nov. 3d, 1883, 1 p. m.

J. H. H.,
Notary Public and Spec. Ex'r.

NEW YORK, *Nov.* 3*d*, 1883.

Adjourned, by consent, to November 16, 1883, 1 p. m.

NEW YORK, *Nov.* 16, 1883—1 p. m.

Met pursuant to adjournment.

Present: Counsel as before; and the witness, being interrogated in recross, testifies:

77 R. X Q. Do you ever make use of the process claimed as your invention of bleaching and refining hair?

A. Yes, sir.

78 R. X Q. When did you last make use of it?

A. Even to-day I am using it.

79 R. X Q. Did you bleach and refine hair to-day?

A. Some of my hands did this morning.

80 R. X Q. Do they use one uniform process in bleaching and refining hair under your direction?

A. No, sir.

81 R. X Q. How many different processes do they use?

A. They vary according to color and fineness desired.

82 R. X Q. Do you mean by a variety of processes simply a variation of periods in the length of time the hair may remain in the bath?

A. I don't mean simply; I mean more.

83 R. X Q. How many different processes do you use for refining hair?

A. I only use articles—those that refine and contain chlorine. I only use one process.

46 84 R. X Q. Describe that one process for refining hair which you say you use.

A. I prepare a vat, put my acids in the vat, add my chlorine salts. After I think it contains chlorine enough I take the hair and bathe it in the bath until it suits my fineness; take it out, wash it, cleanse it so it is fine enough so I can put it in different colors—any colors I choose.

85 R. X Q. How much of and what kinds of acids do you put in the vat?

A. Different kinds of acids, such as muriatic, nitric, hydrofluoric, sulphuric, according to the strength. Sometimes we take a good deal and sometimes a little. Sometimes we take one quart and sometimes ten gallons, according to the quantity of hair we wish to operate on.

86 R. X Q. Do you know the relative quantity of these acids and salts required to refine twenty pounds of Chinese hair?

A. I can't state the exact quantities.

87 R. X Q. Why not?

A. Because some hair is coarser than others; some takes more and some takes less.

88 R. X Q. Do you mean that some Chinese hair is coarser than others, and hence you can't say the relative quantities required?

A. Yes, sir.

89 R. X Q. How do you ascertain when you have enough of chloine salts in use in refining 20 lbs. of Chinese hair?

A. When I find it fine enough—by the fineness.

90 R. X Q. Do you mean the hair grows finer the longer it is kept in the bath of chlorine salts?

A. Yes, sir; and if it is left long enough in it it will eat it all up.

91 R. X Q. How much muriatic acid would you use in a bath to refine 20 pounds of Chinese hair?

A. I stated before I could not tell and I state it again now.

47 92 R. X Q. How much nitric acid do you use in a bath or put in the vat to refine 20 pounds of Chinese hair?

A. I can't state.

93 R. X Q. Can you state how much of either of the other acids you have mentioned, hydrofluoric or sulphuric, you put in a vat to refine 20 pounds of Chinese hair?

A. No, sir; sometimes more and sometimes less.

94 R. X Q. And what is the reason of that?

A. I can tell it by my own head what I want for refining—the fineness I want the hair. It depends upon that; the quantities I cannot tell.

95 R. X Q. You say that you first put the acids in the vat; do you use all the acids you have named on each occasion of refining hair?

A. Sometimes we do and sometimes we don't.

96 R. X Q. What are the reasons for using all of these acids at any one time?

A. To make different colors. Sometimes we use one, sometimes we use them all, and sometimes we use two or three.

97 R. X Q. What are the colors derived when you use all of the acids simultaneously?

A. It makes it so much lighter and finer.

98 R. X Q. What is the color derived when you use one of these acids?

(Objected to unless the counsel states distinctly whether he means the use of one acid with chlorine salts or without chlorine salts; and complainants' counsel directs the witness, in answering the question, to state the effect of the acid when used with or without the chlorine salts.)

(The examiner at this point asked the counsel for defendant if he desired to be understood by the question as directing the witness' attention to any particular acid named in answer to 85 R. X Q.)

(Counsel for defendant replied that he did not wish to specify now, but would do so in subsequent questions.)

48 (The examiner thereupon instructed the witness that in answering the question he had the right to choose any one of the acids named in said answer to 85 R. X Q. to illustrate what he wished to convey to the court.)

A. Plain acid, without the salts, does not change the color—that is, muriatic, nitric, etc. Muriatic acid with chlorine salts will make it finer and bleach it to a lighter hue—sometimes one, sometimes two, three, four, five, six shades lighter—according to the quantity of the chlorine and acid used.

99 R. X Q. When you use but one acid what acid is it?

A. Muriatic acid and chlorine salts.

100 R. X Q. When you use two acids what do you use?

A. Do you mean in refining or bleaching?

101 R. X Q. I mean in making different colors.

(Objected to by complainants' counsel as immaterial and improper, as complainants' counsel has already stated upon the record that no claim was made in this suit for bleaching except as the bleaching was incidental to the refinement.)

A. Hydrofluoric and sulphuric with chlorine salts will make it lighter.

102 R. X Q. When you use two acids for coloring do you invariably use hydrofluoric and sulphuric?

(Counsel for complainants here states that he objects, not only to the question, but to any further examination on this line as immaterial, incompetent, and inadmissible, because the only issue in this suit that can be affected by this cross-examination of the witness is the issue of infringement, and this testimony has no relevance to infringement and is not in cross-examination of any direct

49 testimony given by the witness, and counsel gives notice that he shall move at the proper time to strike out all such testimony for the reasons above given.)

A. I don't color. I only use acids to refine and bleach—I don't color with them.

103 R. X Q. Well, to refine hair, what two acids of those you

have named do you use to refine hair when using only two for that purpose?

(Same objection.)

A. Two acids alone will not refine without chlorine.

104 R. X Q. Will one of these acids alone refine without chlorine?

(Same objection and notice.)

A. Not that I know of.

105 R. X Q. Will three of those acids or any other combination of those same acids refine hair without chlorine?

(Same objection and notice.)

A. Not to my knowledge.

106 R. X Q. In conjunction with chlorine salts, is it necessary to employ all of those acids, or do you select them or any one of them indifferently to refine hair?

(Same objection and notice.)

A. You can select one or more as you choose; you need not employ all if you do not wish to.

107 R. X Q. Under your invention it is absolutely necessary, then, to employ chlorine salts?

(Same objection and notice.)

A. Yes, sir.

108 R. X Q. Without the use of chlorine in some of its forms in bleaching or refining, you do not claim any right to the use of the acids you have named under your patent?

(Same objection and notice.)

50 A. I claim the refining and bleaching with acids and chlorine salts.

109 R. X Q. Do you mean that in your patent that the use of chlorine salts is an indispensable element?

(Same objection and notice.)

A. You can't refine without chlorine salts, to my knowledge—that is, without something containing chlorine.

110 R. X Q. How do you refine twenty pounds of Chinese hair?

(Same objection and notice.)

A. I take a vat, some acids—the vat holds about four gallons. I put some acids in it—say about three or four gallons—generally muriatic; then I add chlorine salts to it. When I think it contains chlorine enough that it will refine coarse hair, I take a bunch—say one pound, sometimes two, sometimes more or less—I dip it in and out till I think it is refined enough, then I take it, wash it, cleanse it, and dry it. For twenty pounds you must always add some acids and chlorine salts as you go along, for that quantity of

hair, as some waste takes place—some spills in drawing the hair in and out. I continue the same process until the twenty pounds are prepared.

111 R. X Q. How much chlorine salts do you put in the vat?

(Same objection and notice.)

A. That depends on the strength of the bath of the chlorine salts and acids.

112 R. X Q. Do you ever use a pound of chlorine salts when you undertake to refine—say two or three pounds of Chinese hair?

51 (Same objection and notice.)

A. I stated before I could not tell the exact quantity by the pound, by twenty pounds, nor by the hundred pounds, and nobody else can, to my knowledge.

113 R. X Q. What guides you, then, in ascertaining when you have a sufficient quantity of chlorine salts and muriatic acid?

(Same objection and notice.)

A. Because the chlorine smokes or steams up; the appearance of the bath.

114 R X Q. In what manner is this operation distinguished, whether one pound or several pounds of chlorine salts be put in the muriatic acid?

(Same objection and notice.)

A. If you put plenty of chlorine in it steams more; a little, it steams less; it grows stronger by more—the bath I mean.

115 R. X Q. How long do you leave the hair in this muriatic acid and chlorine?

(Same objection and notice.)

—. It depends all on the strength of the bath.

116 R. X Q. What effect does muriatic acid alone have on the hair?

(Same objection and notice.)

A. To my knowledge, no effect.

117 R. X Q. Is your knowledge as limited relative to the other acids you have mentioned?

(Same objection and notice.)

A. I don't understand your question.

(Counsel for defendant explains the question.)

52 (Witness then answers): No effect, to my knowlege.

JOHN BÉNÉ.

Subscribed, sworn to, and taken before me, concluding this 15th day of November, A. D. 1883.

J. HOMER HILDRETH,

Notary Public and Special Examiner, by Consent.

Adjourned by consent to November 22d, 1883, 1 p. m.

J. H. H.,
N. P. and Spec. Ex'r.

N. Y., *November* 22, 1883.

Met pursuant to adjournment.

Present: Counsel as before.

Testimony on behalf of complainants continued:

NATHANIEL S. KEITH, a witness produced on behalf of complainants, and first being duly sworn, testifies, in answer to interrogatories propounded by counsel for complainants, as follows:

1 Q. What is your name, age, residence, and occupation or profession?

A. Nathaniel S. Keith; age, 45 years; reside at New York city; am an expert in chemical and electrical matters.

2 Q. How long have you been familiar with chemistry and chemical combinations?

A. From early youth.

3 Q. What experience, if any, have you had with chemical patents?

A. Considerable; both with patents for my own inventions and those of others.

4 Q. Have you seen and are you familiar wth reissued
53 letters patent U. S. No. 8637, dated March 25, 1879, issued to John Béné, for improvement in the treatment of hair?

A. I have, and am familiar with the same.

5 Q. What are the essential features of that patent, as indicated by the specification and claims?

A. The essential features of the process are these: 1st, the treatment of coarse hair in a bath of chemicals, which act to dissolve from the surface of the hair some of its material, so that the hair is reduced in size; 2d, either the simultaneous bleaching of the hair in the same bath or bleaching in a second bath, when desired; 3d, the fixing the colors imparted in a previous bath or baths; 4th, neutralizing the chemicals which might remain with the hair by the or from the previous treatment. The main feature is the first named.

6 Q. I call your attention to the solution first described in the specification. Please describe the effect which such a bath would produce upon hair which should be immersed in it?

(Complainants' Exhibit 1, Sept. 27, 1883, shown witness.)

A. It dissolves rapidly from the surface of the hair a portion of its material, and thus reduces the hair in diameter.

7 Q. Please state whether or not other chlorine salts than chlorate of potash could be used with the muriatic acid, with similar results; if so, name some of them.

A. There are other chlorine salts which, when added to muriatic acid, produce like effects. Nearly all, if not all, of the soluble chlo-

rates, such as chlorate of soda and chloride of lime (chloride of lime, so called improperly, I have named with the chlorates). The chlorides, like chloride of sodium, chloride of potassium, chloride of barium, act in a similar way, when materials are present which gives oxygen to the bath; such materials are permanganate of potash, peroxide of lead, peroxide of manganese, and others.

54 8 Q. Please state whether or not any equivalent substance, other than chlorine salts, could be used with muriatic acid to produce similar results; if so, name some of them.

A. Other materials can be used with muriatic acid for producing similar results, such as those known to chemists and used by them for setting free chlorine or its various combinations with oxygen. These combinations with oxygen are known by the names hydrochlorous acid, chlorous acid, chloric acid, &c.

9 Q. In the use of these compounds or baths, from what substance would the chlorine be set free?

A. From the muriatic acid.

10 Q. Would or would not there be any essential difference in the effect of the two compounds or baths above named upon hair immersed therein?

A. If there be any difference it would be only in degree and rapidity of action.

11 Q. In the third bath described in the specification I find bisulphite of soda named as one of the ingredients used. In making such a bath, name, if you can, any other substance which could be used in place of bisulphite of soda and would be its equivalent in the bath for the purpose named in said specification.

A. I do not understand the action of bisulphite of soda in such a bath; therefore cannot name an equivalent. Muriate of tin is frequently used in dyeing for setting colors. Muriatic acid is often used in making a solution of muriate of tin to prevent its partial decomposition and precipitation.

(Counsel for defendant moves to strike out the last two sentences of the answer as not responsive to the question.)

12 Q. Will you state, as briefly as possible, the operation of the refining bath in reducing the size or diameter of the hair, and to what substance the operation is due?

55 A. The materials of the bath act as solvents of a portion of the hair, the outer portion dissolving continually during the treatment, from the surface exposed. When chlorate of potash is added to the bath a rather complex action ensues: oxygen from the chlorate of potash combines with hydrogen of the muriatic acid, and so doing displaces chlorine of the muriatic acid. It is probable that some of the oxygen combines with some of the chlorine and forms hydrochlorous acid and chlorous acid. It is the chlorine and the oxychlorous acids named which dissolve the hair. The material of the hair so dissolved or removed is decomposed during solution by reason of the strong affinity which these named materials have for the hydrogen of the hair. In satisfying this affinity muriatic acid is formed by the union of this hydrogen de-

rived from the hair with chlorine of the bath. Some of the carbonaceous matter of the hair is also oxidized. The action may be said to be both a solvent and disintegrating one.

13 Q. Are you familiar with the nature, appearance, and structure of hair in its natural state?

A. I am.

14 Q. Are you familiar with its condition and appearance after it has been subjected to the action of a chemical bath in which chlorine is set free by chemical action?

A. I am.

15 Q. Look at the hair now shown you, marked Complainants' Exhibit "Krause for Identification," October 1, 1883, and state what it is, and give your reasons for your opinion.

A. It is hair which has been treated by materials which have dissolved from it its original surface. My opinion is based upon an examination made by me of some of the hair of the exhibit for the purpose of forming my opinion upon the question.

16 Q. Are you acquainted with the state of the art previous to 1874, in reference to the treatment and use of hair; if so, to what extent?

56 A. I have made special examination of books which would, in my opinion, be likely to contain anything relating to the subject, with a view to thoroughly post myself on the state of the art. I had no personal experience prior to 1874 in the refining of hair.

17 Q. What other substance is there, if any, except chlorine and its compounds which will corrode, dissolve away, or remove the surface of the hair so as to reduce the size or diameter without essentially destroying the hair?

A. I have no knowledge of any other.

18 Q. With what degree of certainty can you determine by what process or means the hair in "Exhibit Krause for Identification" has been reduced in size or diameter?

A. With as great a degree of certainty as I can form any opinion on any subject with which I am familiar.

19 Q. Suppose other chemicals than those named in the claims or specification of reissued patent, U. S. No. 8637, were used and effected the reduction in size or diameter of the hair, what would be your opinion, as an expert, as to such treatment falling within the claims of reissued patent No. 8637, and give your reasons briefly for such opinion?

(Objected to by defendant's counsel as immaterial and incompetent.)

A. My opinion is that any method under which, by the action of chemicals, the surface of hair is dissolved or corroded away so as to reduce its diameter comes within the province or "falls within" one or more of the claims of the said patent. I have formed this opinion after having carefully read the patent specification and claims, and state my opinion so broadly because I believe from my investigations that the patentee invented a new art, and as such

inventor is entitled to the broadest construction of his patent.
57 The first claim of the patent covers any method by which the surface may be removed by the aid of chemicals so as to reduce the diameter of the hair.

20 Q. What, if any, difference would it make essentially as to the treatment or method used in refining hair coming within the scope and meaning of the claims of reissued patent No. 8637 whether the chlorine set free by the chemical reaction was taken or produced from the muriatic acid or from the chlorine salts or from any other substance forming a part of the bath?

A. I do not see any difference.

(Complainants' counsel offers in evidence a bundle of hair, consisting of five bunches, marked "Complainants' Exhibit Krause for Identification," October 1, 1883, and requests the examiner to mark it Complainants' Exhibit Krause of this date, which is done.

J. H. H.,
N. P. & Spec. Ex'r.

Adjourned by consent to Nov. 27, 1883, 1 p. m.

J. H. H.,
N. P. & Spec. Ex'r.

NEW YORK, *Nov.* 27, 1883.

Met pursuant to adjournment.

Present: Counsel as before.

And the witness, being cross-examined by counsel for defendant, testifies:

21 X Q. Where did you pursue your chemical studies?

A. In New York city; mainly in the chemical laboratory of my father, commencing about 1853.

22 X Q. Where was your father's laboratory situated?

A. In Mercer street, up to 1860; after that, in Liberty street.

58 23 X Q. Had your father any connection with any institution?

A. No, sir; he was a manufacturing chemist.

24 X Q. Do you mean that he manufactured chemicals?

A. I do.

25 X Q. Will you name some of the principal ones?

A. They were pharmaceutical preparations, such as are called podophyllin, hydrastin, leptandrin, and many others.

26 X Q. They were all used, were they not, in the compounding of medicines?

A. They were sold to druggists and physicians for whatever purpose they might desire to use them.

27 X Q. While having a laboratory did your father have any other business; if so, what?

A. A part of the time he was a practicing physician.

28 X Q. Have you ever attended chemical lectures; if so, where?

A. Not in colleges, if you so mean.

29 X Q. What lectures have you attended on the subject of chemistry, if any?

A. I cannot particularize on that point.

30 X Q. I see that you state in your direct examination that you are an expert in chemical and electrical matters; have you given most of your attention for several years to the subject of electricity?

A. I cannot say that I have. It is hard to say where the dividing line can be drawn, if at all, between the physical sciences; chemical action gives rise to electrical phenomena and electricity determines chemical action; a man to be expert in either branch must understand more or less of the whole.

31 X Q. In using the term electricity in your last answer do you mean galvanism?

A. No.

32 X Q. Do you include also atmospheric electricity?

59 A. I mean by the answer to 30 X Q. that all kinds of actions and reactions of matter may be and, perhaps, are accompanied by what is commonly called chemical action and electricity, and as we now understand these phenomena they are closely dependent upon each other. If you mean by the term "galvanism" electro-chemical action, I meant to include that in my answer; if you mean by the term "atmospheric electricity" the phenomenon which we call lightning, I also mean to include that in my said answer; the term "galvanism" has almost ceased to be used.

33 X Q. Do you understand that there is any difference between the kind of electricity generated by an ordinary battery and that generated or evolved from the clouds?

A. I do not know or understand that there is more than one kind of electricity any more than there is one kind of heat. It is a mode of motion, and varies simply in its manifestations in intensity and tension.

34 X Q. The laws of heat are uniform, are they not?

A. Yes.

35 X Q. Do you say that the laws of electricity are uniform also?

A. I do; the laws governing electrical action have been as accurately determined and mathematically demonstrated as have been the laws of heat.

36 X Q. Will the electricity generated by an ordinary battery leave its conductor and jump over space to find a better conductor?

A. Will you please designate by some known name the battery which you ask about? I cannot answer the question in its present form.

37 X Q. Have you not made your chemical studies or investigations subordinate to your pursuit of electrical phenomena and investigation for some years past?

A. I cannot say that I have, because they are so intimately related. I have been very closely investigating the subject of
60 determining chemical affinities by means of electrical action, and chemical action for the production of electricity; this pursuit, in which I have been very active, involves both chemical and electrical knowledge. For example, by means of electricity I

have made or caused many chemical solvents, solutions, compositions, decompositions, precipitations, and various actions and reactions, such as the formation of pure metals, the purification of impure metals, their separation, and the manufacture of various chemical salts from these metals. For further example, I will state that I have experimented for some number of years past in the so-called storing of electricity. The cells so used are made up of various chemical substances in which electricity causes certain chemical changes, and the substances so produced give rise, under proper conditions, to electric currents in returns.

(The defendant's counsel moves to strike out all of the last answer after the word "because," in first line, as not responsive.)

38 X Q. Will you enumerate some of the books on chemistry or chemical authors which you have read?

A. Brand, Regnault, Musprat, Cook, Silliman, Gregory, and many others.

39 X Q. Have you given the subject of hair any special consideration?

A. I have.

40 X Q. For how long a period?

A. During the last 3 or 4 years.

41 X Q. Did you ever subject hair to a chemical bath or any similar experiment?

A. I have.

42 X Q. How many times and when?

A. A great many times within 3 or 4 years.

43 X Q. What was the bath composed of?

A. The baths were composed of one or more acids, alkalies, salts, etc., and various combinations of the various materials, such as would be made for experimental purposes.

61 44 X Q. Were these experiments made with reference to this suit or with reference to any legal controversy?

A. Partly with reference to this suit and partly with reference to another legal controversy.

45 X Q. Did the other legal controversy involve Mr. Béné's patent, as you understand?

A. It did.

46 X Q. I understand you to say, do I not, on your direct examination that a hair has something like a barb or shard upon the outside?

A. I do not remember of using those terms.

47 X Q. Does the hair possess something like barbs upon its outside?

A. It possesses a roughness due to a scale-like formation on its surface. This roughness is not as pronounced as the barb of a fish-hook, for example.

48 X Q. Is it so pronounced that it can be felt?

A. Yes. I do not mean by that that the separate and distinct scales can be distinguished by the sense of touch.

49 X Q. By drawing a hair slowly between the thumb and fore

finger can you generally tell which end of the hair contains the root?

A. I cannot, infallibly. I prefer to take the suspected hair between the thumb and finger, so that all are approximately parallel, and move the finger and thumb to and fro longitudinally along the hair. The hair will then move in the direction of its root. This motion is due to the end of the scales or minute barbs catching to the thumb or finger. As these scales are turned with their free ends from the root the hair moves towards the roots. The bases of the scales are towards the root of the hair.

50 X Q. Now, if you subject hair to a chemical bath strong enough to eat away, corrode, or dissolve the hair to such an extent as to lessen its diameter would not the operation remove the barbs or scales from the surface of the hair?

A. It would.

62 51 X Q. Is not the hair a tube?

A. Hair is commonly said to be a tube, but I do not understand that it is a tube having its walls of uniform thickness, but that it is a cylinder rather, the inner portion of which has a pith-like substance, with no marked line of separation between the pith and walls. Some books say that a hair is a tube which is filled with an oil which gives color to the hair.

52 X Q. Is not the strength of a hair mainly in its surface?

A. No; a surface has length and breadth, but no thickness; consequently no strength.

53 X Q. Is not that portion of a hair composing or lying near its external surface stronger than the same quantity of material found in any other part of the hair?

A. It is.

54 X Q. Then, if the hair by being subjected to Béné's or any other bath strong enough to lessen its diameter is not the hair essentially weakened in the operation?

A. It is in the same way that a cylinder of any material is weakened, by reducing its diameter. A thin hair has less strength than a thick hair having the same cellular arrangement and composition of materials. It does not follow that, because one hair is weaker than another, that the weaker or the stronger has been submitted to a chemical bath.

55 X Q. The bath, according to Béné's formula, into which chlorine enters is strong, is it not?

A. It is strong enough to dissolve or corrode the hair and reduce its diameter.

Adjourned by consent to December 1, 1883, 1 p. m.

J. H. H.,
N. P. & Spec. Ex'r.

63 NEW YORK, *December* 1, 1883.

Met pursuant to adjournment.

Present: Counsel as before.

Cross-examination of witness KEITH resumed:

56 X Q. When and what examination have you made of hair, "Complainants' Exhibit Krause?"

A. I cannot now state the exact dates, but I made an examination of that exhibit some time in October or first part of November, 1883, and repeated the examination a few days before I commenced to give testimony in this case. I submitted some of the hairs to microscopical examination. I soaked some of the hair in naphtha to remove the grease and dirt, and placed many of them successively under the object-glass of a microscope which magnified about two hundred diameters. Knowledge previously gained of the appearance of hair which had been submitted to the action of solvents enabled me to form the opinion which I expressed in answer to Q. 15 on direct.

57 X Q. You made no other examination than by means of a microscope?

A. I also exercised the sense of touch, not so much to verify the microscopical examination as to gratify my curiosity.

58 X Q. Why did you exercise the sense of touch; did you have any purpose in mind in so doing? If so, what was it?

A. No other purpose than that of determining my opinion by a minor test; the microscopical test is absolute, while that of touch is the result of experience or education in that line.

59 X Q. What opinion did you want to determine by a sense of touch?

A. My opinion as to the question whether the hair had been submitted to the action of materials which had dissolved away some of its substance. This was only a minor test, subservient to the microscopical one.

64 60 X Q. And do you mean to say that your sense of touch aided in revealing to you that this hair had been so operated on?

A. I do not.

61 X Q. Did such an examination by sense of touch aid in revealing to you anything about this hair? If so, what?

A. Nothing beyond that revealed by the microscope. In making examinations for the purpose of forming an opinion on any scientific or technical subject I always try to pursue the method or methods which will give me the most reliable facts upon which to base my opinion. I have no doubt that persons skilled in the art of refining hair or who handle it in trade can readily determine by the sense of touch whether hair has been submitted to the action of solvents which have dissolved away a part of its substance. I do not claim to have had experience enough to be able to infallibly form an opinion by the sense of touch; so I may say that any exercise of that sense which I may have made was not for the purpose of either

forming or sustaining my opinion, which was formed from another examination—namely, by the microscope.

(Defendant's counsel objects to all that portion of the answer after the first sentence as not being responsive.)

62 X Q. Did you find the hair on such examination, from the sense of touch, rough or smooth?

A. The terms rough and smooth have such indefinite values that I am unable to answer the question. I will state, however, that the hair was smoother than natural hair, and that fact I determined more by the sense of sight through the microscope than by touch.

63 X Q. How do you know that the microscope with which you made your examination was about two hundred diameters?

65 A. From believing the representations of its reputable manufacturer and from my own judgment, without having verified its power by the use of a micrometer.

64 X Q. Is the instrument in your possession?

A. It is, and it is owned by me.

65 X Q. Describe the appearance of the hair you examined as seen under the object-glass of the microscope.

A. The various individual hairs differed in color from light to dark; they were all cylindrical, of somewhat irregular diameter along their lengths, were smooth—that is, they were divested of their scales—and in some places there were little knobs, probably remnants of the scales.

66 X Q. Is it only in the respects you have mentioned that the hair you examined differed from the ordinary natural hair?

A. As far as I now call to mind.

67 X Q. What has become of the hair you so examined?

A. They were thrown aside and not preserved.

68 X Q. Did you ever submit hair to a bath similar to that described in the patent; if so, how often and when?

A. I have, a dozen or more times, in the past three or four years.

69 X Q. You have not, perhaps, since your examination in the other suit, have you?

A. I have.

70 X Q. With reference to the suit here now pending?

A. It was.

71 X Q. You knew of the effect of a bath similar to that described in the patent from your experiments relative to the suit of Béné *vs.* Grünberg. What was the purpose of repeating the process in reference to this suit?

A. To refresh my memory so as to be able to act as intelligently as I can as an expert in this case.

66 72 X Q. Did you want to refresh your memory as to the appearance of the hair after the bath, or was it only as to their use in their order of the ingredients of the bath?

A. It was for all the purposes for which an expert would qualify himself.

(Defendant's counsel objects to answer as not responsive.)

73 X Q. Same as X Q. 72.

A. It was for both these purposes, and for the additional ones stated in the previous answer to this.

74 X Q. Then did you regard yourself as completely qualified to testify as an expert in this suit without a repetition of the process described in the patent?

A. I did.

75 X Q. Then why do you say that you repeated the process for all the purposes for which an expert would qualify himself?

A. I say that because I am in the habit of trying to make my assurance doubly sure.

76 X Q. When did you last make use of this bath and where?

A. At Mr. Béné's establishment in Brooklyn, N. Y., a short time ago—within a month past.

77 X Q. Did you prepare the bath yourself?

A. I did not handle the ingredients, but it was made at my request and under my personal supervision.

78 X Q. Were all your experiments in regard to refining and bleaching hair at Mr. Béné's establishment?

A. They were not.

79 X Q. Where were those performed which were not at his establishment?

A. Some at my house, some at my office, some at my laboratory.

80 X Q. Do you now remember how the bath was prepared and the operation performed you mention as having made about a month ago?

A. I do.

67 81 X Q. Will you please state each incident thereto in their order.

A. Some muriatic acid—about a gallon—was poured into an earthen jar, and that jar was placed on the top of a wooden box which was on the roof of a building, in the open air; some chlorate of potash—about two pounds—was put in an earthen basin and the basin placed alongside the jar of muriatic acid; a ladle—wooden, as I now call to mind—was in the chlorate. By means of the ladle a quantity—about two or three ounces—was put into the muriatic acid in the jar. A bunch of dark coarse hair was put into the jar of the mixture by an India-rubber glove-covered hand of one of Mr. Béné's workmen, and moved around in the mixture, taken out and immersed again two or three times, when it was removed and the mixture stripped out of the hair into the jar by drawing it through the gloved hand. Then it was washed with water. These quantities I have named are as I now call them to mind. They were neither measured nor weighed and may have been a little more or a little less.

82 X Q. Did that conclude your experiments on this occasion?

A. That concluded that experiment, with the exception of my viewing and handling the hair which I have thus described the treatment of.

83 X Q. But this examination was not microscopic, was it?

A. I cannot so construe it.

84 X Q. Did you examine this hair by means of a microscope?

A. I did not.

85 X Q. Do you mean to say that that experiment alone qualifies you for the purposes of an examination as an expert in this action?

A. I do not.

86 X Q. Should you not have pursued your examination further and have examined the hair more critically to be able to say what was the effect of that bath upon it?

68 A. No; if it had been the only experiment which I had tried in that direction it would have been necessary to have examined the hair after its treatment.

87 X Q. In what respect did this experiment refresh your memory?

A. It did not refresh my memory, but it was done for the purpose of recalling to my attention any condition or phenomenon which I possibly might notice and which might not have been at the time forward in my mind.

88 X Q. Why did you not pursue your investigations or experiments on that occasion as to the other features you speak of?

(Objected to as being indefinite and incompetent, unless counsel for defendant specifies the features referred to.)

A. I would be pleased to answer the question were it made sufficiently definite for me to understand the "features" referred to, or in what connection the term is used.

Adjourned to December 4th, 1883, at 1 p. m.

J. H. H.,
Notary Public and Spec. Ex'r.

NEW YORK, *Dec.* 4, 1883.

Met pursuant to adjournment.

Present: Counsel as before.

Cross-examination of witness KEITH resumed:

89 X Q. Will you look at the specimen of hair produced and marked "Def't's Ex. No. 1 for Identification, Dec. 4. 1883," J. H. H., notary public, and Spec. Ex'r, and tell us whether that appears to have been treated in any manner?

A. From this incomplete and imperfect examination, which
69 I am only able to make at the present time simply by unaided sight and touch, I do say that this hair has been treated in some manner.

90 X Q. How, in your judgment, and with what agents, if any, has it been treated?

A. It has been bleached; hair may be bleached by various agents; peroxide of hydrogen is the agent most in use and the least likely to injuriously affect the texture and strength of the hair.

91 X Q. Has that, in your judgment, been treated by peroxide of hydrogen?

A. I am not prepared to express judgment upon that point.

92 X Q. Of what chemical agents is peroxide of hydrogen formed?

A. Oxygen and hydrogen; the chemical formula is $H^2 O^2$; this means 2 parts of hydrogen to 2 parts of oxygen.

93 X Q. What, in your judgment, was the color of that hair before it was operated upon?

A. The visible facts are insufficient for the formation of any judgment by myself on that point.

94 X Q. What makes you think it has been bleached at all?

A. For two reasons: 1st, because it is so very coarse, coarse hair being naturally darker than this exhibit; and, 2d, its shade of color is unlike that of any natural hair which I ever saw and can call to mind, and its sheen is unlike that of natural hair of approximately the same color.

95 X Q. Is this human hair?

A. I believe it is from the imperfect examination I am able to give it here.

96 X Q. Have you not seen many ladies whose hair was apparently about the hue of this specimen?

A. I have, and they are generally called bleached blondes.

(Objected to, last part of answer, as irresponsive.)

97 X Q. When you see a lady whose hair is apparently this hue do you necessarily infer that her hair has been bleached?

70 A. I cannot say that I make a practice of drawing inferences of the kind; the hue or color is so uncommon that the wearer of the hair is often criticised in that manner.

98 X Q. This hue or color as shown by the specimen was a popular color or hue some years ago, was it not?

A. I believe it was so considered.

99 X Q. Have you any interest, direct or indirect, remote or contingent, in the result of this suit?

A. I have not.

100 X Q. Is there any understanding between you and the plaintiff, if he should recover, by which the recovery or any share is to to be divided between you?

A. There is not.

No redirect examination.

N. S. KEITH.

Subscribed and sworn to before me this 4th day of December, 1883.

J. HOMER HILDRETH,
Notary Public and Special Examiner by Consent.

SAMUEL T. SMITH, being then called and having been duly sworn, was examined as a witness in behalf of complainants, viz:

1 Q. What is your name, age, residence, and occupation?

A. Samuel Tro. Smith; age, sixty-five; my residence, 318 West

23d street, New York city; occupation, lawyer; I am complainants' solicitor in this suit.

2 Q. (Paper shown witness.) What is the paper now shown you?

A. It is a copy notice which I served on the defendant, Emile Jeantet, on the 17th day of September, 1879, at his place of business, in University Place, in the city of New York.

71 (Paper offered in evidence and marked Complainants' Exhibit, Smith of this date, J. H. H., N. P., Ex.)

(Complainants' Exhibit 2 Krause shown witness.)

3 Q. Please state what you know of this paper.

A. In January, 1882, John Béné, complainant in this suit, placed in my hands this bill, Complainants' Exhibit 2 Krause, accompanied by a package of hair, consisting of 8 bunches. That package remained in my possession in one bundle until the day of the commencement of this examination, when I separated it into two bundles, one containing three bunches and the other five bunches. The bundle containing three bunches was put in evidence in this case September 27, 1883, as "Complainants' Exhibit 3 Krause;" the package consisting of five bunches was marked in evidence "Complainants' Ex. Krause for Identification," October 1, 1883. I subsequently took a small portion out of each of these five bunches in exhibit for identification and delivered the same to Mr. N. S. Keith, the expert in this case, for the purpose of making an examination of it. On November 22d, 1883, the bundle for identification was also put in evidence in the case and marked "Complainants' Exhibit Krause."

Cross-examination:

4 X Q. When and from whom did you receive the eight bundles of hair?

A. From John Béné, within a week after the date of this bill, Complainants' Exhibit 2 Krause, January 16, 1882.

5 X Q. When did you make a division of the bundle?

A. September 27, 1883.

6 X Q. Was anybody present?

A. Yes; John Béné and Mr. Krause, the witness heretofore sworn in this case.

72 7 X Q. Were the eight bunches tied up in one bundle when you received them?

A. They were.

8 X Q. Why did you distribute them into two bundles?

A. I desired to put a portion of the hair in evidence on that day, and to keep the remainder in my hands for the purpose of allowing one or more experts to make a careful examination of the hair, as well as any experiments they might desire to make, before being sworn to testify in this cause.

9 X Q. Have not both bundles, since the separation, been in your possession?

A. They have, in the sense that the examiner and myself occupy

the same office. I have had free access to them and substantial control of them, as stated above.

10 X Q. How much hair in quantity did you take from the five bunches and deliver to Mr. Keith?

A. I allowed him to take what he thought would be sufficient, and he took a very small quantity, perhaps twenty or thirty hairs from each bunch.

11 X Q. Did you see Mr. Jeantet when you served Complainants' Exhibit Smith, Dec. 4, 1883, upon him?

A. The most I can say about that is that I called at Mr. Jeantet's place of business, 62 University Place, N. Y. city, and enquired for Mr. Jeantet; a person representing himself to be Mr. Jeantet came forward and I gave him the paper. I could not now say whether it was the defendant or not, but will state that I did subsequently serve another notice of a similar kind on Mr. Jeantet at his subsequent place of business, 123 West 15th street, N. Y. city.

(The last part of answer referring to a subsequent notice objected to as irresponsive and incompetent.)

12 X Q. Do you know Mr. Jeantet now, and do you see him here at this hearing?

A. Yes.

73 13 X Q. Did you call at his University place but once?

A. Yes; I called there as early as June, 1879, and I think I called there two or three times without finding him previous to September 17, 1879, and now, on refreshing my recollection, I think I called on the evening of the 17th September, 1879, and was informed that he was not in, and called again on the morning of the 18th September, 1879, and gave the notice as before stated.

(All after word "yes" in answer objected to as irresponsive.)

14 X Q. What side of University Place was No. 62 and near what street?

A. I cannot now say with certainty which side of the street it is on, as I served notices on both sides of the street, but it is not far from 12th street.

15 X Q. Did you serve notices concerning hair on both sides of the street?

A. I did.

16 X Q. I understand you to say now that the notice was served on the 18th, instead of September 17th, 1879?

A. I think, on reflection, it was the 18th.

17 X Q. When was the date of the notice changed from June 19 to September 17, 1879?

A. The notice was written June 19, 1879, and not being able to serve it then, on September 17 the date was changed, as appears on the exhibit.

18 X Q. What do you mean by being unable to serve it?

A. I mean I went to serve it, but did not find him in.

19 X Q. Is this exhibit original or a copy?

A. This exhibit is one of two duplicates, this being the draft and the other having been made from it.

20 X Q. Now, Mr. Smith, was not the notice sent to Mr. Jeantet by mail?

A. No, sir.

74 24 X Q. This exhibit appears to have been doubled in letter form, does it not, heretofore?

A. Yes; the notice was written, folded, put in an envelope, and directed on the outside to Emile Jeantet, at No. 62 University Place, N. Y. city, and handed to Mr. Jeantet, or somebody who answered for him there, and the copy was kept in the envelope with the notice until the time of service. I prepared a large number of notices in this way at the same time to hair men other than Jeantet. I can now state that Mr. Jeantet's place of business was on the west side of University Place, because Jouffet's place was on the east side and was No. 75.

SAM. TRO. SMITH.

Subscribed and sworn to before me this 4th day of December, 1883.

J. HOMER HILDRETH,
Notary Public and Special Examiner by Consent.

Complainants rest.

J. H. H.,
N. P. and Spec. Ex'r.

I, the undersigned, a special examiner duly appointed and acting in this cause, by consent, to take testimony in behalf of complainants, and as well as notary public duly qualified, do hereby certify that on the several days named in the deposition hereto annexed and hereto transmitted I was attended, at the place named in the notice, by counsel for complainants and defendant and the witnesses named in said depositions; that said witnesses and each of them were duly sworn and examined and their depositions duly taken and subscribed, as appears by the record; that the exhibits marked and likewise hereto annexed were duly introduced in evidence in said cause during the taking of the deposition to which the same belong, and the same still remain in the same condition as when so introduced before me.

75 And I further certify that the foregoing record comprises complainants' complete *prima facie* case, and that I am not connected by blood or marriage with either of the parties litigant herein, nor interested directly or indirectly in the matter in controversy.

In testimony whereof I have hereunto set my hand and affixed my seal of office at the city and in the county and State of New York this 4th day of December, A. D. 1883.

[L. S.] J. HOMER HILDRETH,
Notary Public and Special Examiner by Consent.

COMPLAINANTS' EXHIBIT 1. Béné's Letters Patent, Reissue No. 8637.

Reissue.

The United States of America to all to whom these presents shall come:

Whereas John Béné, of Brooklyn, New York, has presented to the Commissioner of Patents a petition praying for the reissue of letters patent for an alleged new and useful improvement in the treatment of hair, for which letters patent were issued to him, dated November 21, 1876, the same surrendered and new letters issued to him, dated August 21, 1877, which last letters having been surrendered the same have been cancelled and new letters ordered to issue to him on an amended specification, a description of which invention is contained in the specification, of which a copy is hereunto annexed and made a part hereof, and has complied with the various requirements of law in such cases made and provided; and

Whereas, upon due examination made, the said claimant is adjudged to be justly entitled to a patent under the law:

76 Now, therefore, these letters patent are to grant unto the said John Béné, his heirs or assigns, for the term of seventeen years from the twenty-first day of November, one thousand eight hundred and seventy-six, the exclusive right to make, use, and vend the said invention throughout the United States and the territories thereof.

In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed at the city of Washington this twenty-fifth day of March, in the year of our Lord one thousand eight hundred and seventy-nine, and of the Independence of the United States of America the one hundred and third.

[L. S.] A. BELL,
Acting Secretary of the Interior.

Countersigned:
H. E. PAINE,
Commissioner of Patents.

UNITED STATES PATENT OFFICE.

JOHN BÉNÉ, of Brooklyn, New York.

Improvement in the Treatment of Hair.

Specification forming part of Letters Patent No. 184,577, dated November 21, 1876; Reissue No. 7850, dated August 21, 1877; Reissue No. 8637, dated March 25, 1879; application filed March 4, 1879.

To all *to* whom it may concern:

Be it known that I, John Béné, of the city of Brooklyn, in the county of Kings and State of New York, have invented certain improvements in the treatment of hair, of which the following is a specification:

This invention relates to the treatment of all kinds of coarse hair, which, in its natural state, has little commercial value, and is entirely unfit for toilet uses and purposes.

77 The said treatment serves, mainly, to refine the hair or reduce the diameter of the hairs and to render them more pliable and glossy; but it also serves to partially bleach the hair or lighten its color or tint and fit it to pass through any of the ordinary dyeing process, whereby it may be given any shade or color desired or possible.

In carrying out my invention, for the purpose of producing from the coarse, harsh hair above mentioned a soft, pliable hair of fine texture, I treat the said coarse hair to a bath composed of such chemicals or chemical substances as will dissolve away a portion of the surface of each hair, and thus reduce its diameter.

I find that a solution of a chlorine salt dissolved in an excess of muriatic acid serves my purpose as a bath for this refining treatment, and I prefer to employ about once ounce of chlorate of potash dissolved in four quarts of muriatic acid. This compound I prepare in a vat, jar, or other suitable vessel, and into it the hair is dipped and manipulated until the desired degree of fineness is obtained.

This process is applicable to hair of any color, the action of the chemicals being substantially the same in all cases; but the darker shades are brought to a lighter hue, and the shades of color so obtained may be retained, or the hair, after refining, be dyed in the usual manner.

In the practical use or application of the above process muriatic is the acid preferably employed; but where the hair is to be bleached to a lighter hue than is possible by the above method a more intense bath is employed. In addition to the muriatic acid this bath may consist of either nitric, sulphuric, or hydrofluoric acid, with bichromate of potash; and I prefer to employ a compound composed of the following ingredients, in about the following proportions, namely: To sixteen quarts of warm water add four to six ounces of hydrofluoric acid, one ounce of sulphuric acid, four quarts of muri-

78 atic acid, and four to six ounces of bichromate of potash. Into this bath the hair is placed until it is bleached to the color or shade desired.

To permanently set or fix the color or shade thus obtained I employ a bath composed of the following ingredients, in about the proportions named: To four gallons of warm water add one quart solution muriate of tin, one ounce bisulphite of soda, and four ounces of muriatic acid.

The refined and bleached hair is immersed in this bath and manipulated until the color is firmly set.

As a finishing treatment for removing all impurities I wash the hair in a final bath of water and ammonia, after which it is dried and made ready for market.

The hair, after being subjected to the above treatment, loses its original harshness and assumes a soft silky texture, with a brilliant luster, which is permanently retained.

This treatment is applicable not only to coarse grades of human

hair, but also to hair from the manes and tails and other parts of animals, the same result being attained in all cases—that is, a product rivaling the finest human hair.

I claim as my invention—

1. The method of refining all grades of coarse hair, which consists in subjecting it to the action of chemicals, whereby the surface of each hair is corroded or dissolved away and its diameter reduced, substantially as set forth.

2. The method of refining coarse hair, which consists in subjecting it to the action of a bath composed of muriatic acid, in which is dissolved a chlorine salt, substantially as set forth.

3. The method of refining and bleaching all kinds and grades of coarse hair, which consists, first, in bathing and manipulating the same in a chemical bath composed of acid and a chlorine salt,
79 and then in a bleaching-bath composed of acids and bichromate of potash, substantially as and for the purpose set forth.

4. The method of refining and bleaching all kinds and grades of coarse hair, which consists, first, in bathing and manipulating the same in a bath composed of acid and a chlorine salt, which refines the hair; second, subjecting the refined hair to a bath composed of acids and bichromate of potash; and, third, subjecting the hair thus refined and bleached to the proper shade to a fixing bath composed of warm water, solution of muriate of tin, bisulphite of soda, and muriatic acid, which sets the color, substantially as set forth.

5. The method of refining and treating hair, which consist in first passing it through a refining bath composed of an acid and a chlorine salt; then, if desired or necessary, through bleaching and fixing baths, as above described, and, finally, treating the hair so refined to a bath composed of water and ammonia, to remove all of its impurities, substantially as specified.

6. As a new article of commerce and manufacture, hair of fine texture produced from any grade of coarse hair, either animal or human, by the method of refining, substantially as herein described.

In witness whereof I have hereunto set my hand this 28th day of February, 1879.

JOHN BÉNÉ.

Witnesses:
JOHN U. SHORTER.
E. B. LANSING, JR.

80 COMPLAINANTS' EXHIBIT 2 KRAUSE. Bill of Infringing Goods.

NEW YORK, *Jan.* 16, 1882.

Mr. Krause, bought of E. Jeantet, importer of human hair, 123 West 15th street, between 6th and 7th aves.

1 lb. 3½ oz. blonde 55 c. m. Georgian, @ 9.50 ---------- $11 58

Paid.

E. JEANTET,
KIMPEL.

COMPLAINANTS' EXHIBIT BÉNÉ TO GRUNBERG. License from Béné to Grunberg.

Agreement and License.

Whereas in a certain suit in equity in the United States circuit court for the southern district of New York, between John Béné, of Brooklyn, N. Y., complainant, and Adolph Grünberg, of New York city, defendant, for an infringement of complainant's reissued letter patent No. 8647, granted 25th March, 1879, to the said John Béné, for improvement in refining and bleaching hair, a final decree and judgment has been entered in favor of the complainant establishing said letters patent and awarding profits and costs to complainant;

And whereas the said defendant, Adolph Grünberg desires to acquire the sole and exclusive right and license under the said reissued letters patent to use the invention therein described and claimed throughout the United States, for the purpose of bleaching and refining what is known in the trade as yak hair (being hair from the yak) and hair from other quadrupeds, for the full term of said letters patent; and

81 Whereas the said complainant is willing to grant such exclusive and entire license to Adolph Grünberg, reserving to himself, so far as the yak hair is concerned, the right to bleach and refine yak hair for use in his own retail business to an amount not to exceed five pounds in weight in any one year:

Now, therefore, the respective parties do hereby agree as follows:

1. The said John Béné hereby grants to the said Adolph Grünberg, his assigns and legal representatives, for the full term of said patent, throughout the United States and Territories, the sole and exclusive right and liberty to use and practice the invention described in said patent, in so far as it relates to bleaching and refining yak hair and the hair of all other quadrupeds and to selling the same when so bleached and refined (with the above reservation as to use in his, Béné's, retail business) for the sum of five hundred dollars and a royalty of five dollars per pound for each and every pound of yak of other quadruped's hair bleached, refined, and sold by the said Grünberg, according to the said patent or according to the method practiced by the said Grünberg, as stated in his testimony in the suit above mentioned.

2. The said Adolph Grünberg, in consideration of this license and agreement, agrees to pay to the said John Béné, his assigns and legal representatives, the sum of five hundred dollars (two hundred and fifty dollars upon signing this license and two hundred and fifty dollars sixty days thereafter) and the royalty or license fee of five dollars per pound for each and every pound of yak or other quadruped's hair bleached, refined, and sold hereafter by the said Grünberg or his associates, as stated in article I.

And that he will keep accurate books of account of all yak and other animal hair bleached, refined, and sold by him, which books shall be open at all reasonable times to the inspection of the

82 said Béné or his proper agents, assigns, or legal representatives, and that quarterly returns on oath of the quantities of yak or other quadruped's hair so bleached, refined, and sold shall be rendered to the said Béné; the first return to be made on the first day of March, 1882, and the payment therefor shall be made within ten days after such reports.

3. It is further agreed that, in case of any infringement of the right secured by this license, the said Béné will cause suits to be brought in his name whenever requested to do so by said Grünberg, at the expense of said Grünberg, who hereby agrees to furnish the necessary funds therefor.

4. It is also agreed that this license shall become null and void at the election of the said Béné, after thirty days' written notice by the said Grünberg, whenever the said Grünberg shall fail to keep the conditions herein mentioned for him to do or perform or any of them.

5. It is also agreed that this license shall become null and void at the election of the said Grünberg, after thirty days' written notice to the said Béné, whenever the said letters patent shall be held to be void by the decision of any circuit court of the United States.

6. In consideration of this agreement the said Béné hereby releases the said Grünberg in full to date for all costs, profits, and damages under the said letters patent, and from the judgment entered against the said Grünberg in the suit hereinbefore mentioned.

In witness whereof we have hereunto set our hands this 24th day of December, A. D. 1881.

In duplicate.

JOHN BÉNÉ.
ADOLPH GRÜNBERG.

In presence of—
SAM'L TRO. SMITH.

83 COMPLAINANTS' EXHIBIT SMITH. Notice of Infringement.

Law Office of Sam. Tro. Smith, 21 Park Row, New York, room 55, top floor (take elevator); practice in all the courts; especial attention given to patent cases before the Commissioner and in the courts.

NEW YORK, *Sept.* 17, 1879.

Emile Jeantet, 62 University Place, N. Y. City:

My client, Mr. John Béné, informs me that you are dealing in an article of refined hair which is an infringement on his rights as secured to him by letters patent, reissue 8637, dated March 25, 1879.

As Mr. Béné is the original and first inventor of the refinement of coarse hair and giving it commercial value by adapting it to use by chemical treatment, and has obtained letters patent covering his invention and improvement, with the exclusive right to make, use, and sell such article in the United States and Territories, you must be aware that selling such goods in the market is a direct infringement of his letters patent and a positive injury to him, lessening the market for his goods and reducing the price by competition.

This letter is to call your attention to the infringement and to warn and require you to desist from selling or putting any such goods on the market, and to settle for the damages already sustained by him by what you have already sold.

Mr. Béné has placed the matter in my hands, and unless the sale, etc., is discontinued I must take measures to see that his rights are respected.

Yours truly, SAM. TRO SMITH,
Att'y for John Béné.

84 U. S. Circuit Court, Southern District of New York. In Equity.

JOHN BÉNÉ and ADOLPH GRÜNBERG *vs.* EMILE JEANTET.

To Wm. P. S. Melvin, Esq., solicitor for respondent:

Take notice that on Tuesday, the 26th day of August inst., I shall take the testimony of witnesses in rebuttal on the part of the complainants herein, under the 67th rule, as amended, before a proper officer, at the office of J. Homer Hildreth, Esq., at 291 Broadway, New York, at one o'clock p. m., and continue from time to time until completed. You are invited to attend and cross-examine.

Yours, &c., SAM. TRO. SMITH,
Solicitor for the Complainants.

August 22, 1884.

85 *Deposition of N. S. Keith.*

United States Circuit Court, Southern District of New York. In Equity.

JOHN BÉNÉ and ADOLPH GRÜNBERG *vs.* EMILE JEANTET.

Depositions of witnesses to be used at final hearing in this cause upon the part of complainants in rebuttal, taken before the undersigned, a notary public, duly commissioned and qualified, and serving as special examiner by consent, under and pursuant to the annexed notice.

And now, on this 26th day of August, A. D. 1884, at my office, 291 Broadway, N. Y. city, N. Y., duly appears counsel for complainants, Sam. Tro. Smith, Esq., and counsel for defendant, Wm. P. S. Melvin, Esq.

Counsel for complainants called as a witness in their behalf NATHANIEL S. KEITH, who, being duly sworn, testifies as follows:

1 Q. Have you been sworn before as a witness in this cause?

A. I have.

2 Q. Did you hear and have you read the deposition of defendant's witness, Charles Marchand, in this cause?

A. I heard part of it given and have read the whole.

3 Q. In answer to Q. 34 of Charles Marchand, in his deposition in reference to the specification of Béné's patent, are these words: "It is

perfectly false;" * * * "the solution of the salt means that you can reconstitute that salt by crystallization or evapora-
86 tion." Is that a fair statement of the chemical meaning of of the word solution?

A. It is not fair; it is a much too limited one. The term has a much broader signification, both in common and in strictly chemical uses of the word.

4 Q. Will you look at the book I now show you and state what it is?

A. It is an Elementary Treatise on Physics, experimental and applied. It is in English as translated from "Ganot's Elements de Physique," by E. Atkinson, Ph. D., F. C. S., tenth edition, printed in New York by Wm. Wood & Co., 1881.

5 Q. Is that book authority upon the subjects of which it treats?

A. I believe it is; it is generally so recognized and considered a standard work.

6 Q. Will you read on page 28, of section 342, of said book the definition of the term "solution?"

A. Will you please quote, "A body is said to dissolve when it becomes liquid in consequence of an affinity between its molecules and those of a liquid. Gum-arabic, sugar, and most salts dissolve in water."

7 Q. Do you find anything in the same section referring to solution other than in water?

A. I find that the two phenomena are referred to as taking place during solution, which phenomena are stated as follows: "The first is the passage from the solid to the liquid condition, which always lowers the temperature. The second is the chemical combination of the body dissolved with the liquid, and which, as in the case of all chemical combinations, produces an increase of temperature."

(Counsel for defendant objects to answer as not responsive, and will ask to have it stricken out.)

8 Q. Will you look at the book now shown you and state what it is?

A. It is entitled "Chemical and Pharmaceutical Manipu-
87 lations by Campbell Morfit, practical and analytical chemist, author of Applied Chemistry, etc. Published in Philadelphia, Pa., by Lindsay and Blackiston, 1849." I have been familiar with this book for at least 30 years.

9 Q. Is this work good authority upon the subjects of which it treats?

A. It is.

10 Q. Will you read from page 280 of said book the paragraph which I now point out to you in chapter XIX thereof?

A. I read: "When a substance added to a liquid is wholly or partly taken up by that liquid it is said to be soluble therein. The liquid employed is termed the solvent, and its combination with the dissolved particles a solution; and if the liquid has exerted its solvent power to the fullest extent, then the solution is said to be saturated, because it can hold no more."

"The variable degree of solubility in different liquids serves as a distinctive characteristic, particularly those which are solid. Solution is either wholly mechanical or else chemico-mechanical. In the first case it is a molecular division of a body, or, in other words, a diffusion of its particles in an appropriate liquid without any alteration of its original properties, save as to form and cohesion. * * * In the second case, chemico-mechanical solution, in contradistinction to that which is purely mechanical, is a process requiring the modification of a body by chemical action previous to its solution. Thus, for example, copper, iron, or any other base or acid, insoluble in the ordinary solvents, may be readily taken up by liquid acids or bases."

11 Q. In answer to cross-question 103, in Marchand's deposition, referring to chlorine water, he says: "It is manufactured for such purpose, but it is not manufactured for the trade." Is such pure solution of chlorine, or chlorine water, manufactured and sold by the trade?

A. It is both manufactured for and sold by the trade.

88 12 Q. What is the book I now show you?

A. It is the general prices current of foreign and domestic drugs, medicines, chemicals, etc., issued by W. H. Schieffelin & Co., William, corner Beekman street, New York. It is published for the information of the purchasers of drugs and chemicals, such as druggists and chemists; it gives a long list of articles bought and sold in the trade, with the prices, in most cases, printed therein. This price-list has 380 octavo pages, besides many pages devoted to the index and advertisements. I procured it from Messrs. Schieffelin & Co. about the first of July, 1884.

(Objected to by defendant's counsel as to all that part of answer after words "such as druggists and chemists," as not responsive to question, and will move to have same stricken out.)

13 Q. What, if anything, do you find therein relating to chlorine water, and where?

(Counsel for defendant objects to this method of proof and to the question as being incompetent.)

A. I find on page 133 of said book, under the heading, "Waters, W. H. Schieffelin & Co.'s," the following line: "Water chlorine, lb. 15." These figures "15," from the context, being arranged in the column as are dollars and cents usually in price-lists, evidently mean 15 cents.

14 Q. What, if anything, do you know in relation to the sale of such water by said firm?

(Objected to as incompetent by defendant's counsel.)

A. I have bought it there.

15 Q. Do you know whether it is kept on sale by other dealers in chemicals?

(Same objection as to Q. 14.)

89 A. Only so far as this; I have seen it upon a number of price-lists published by a number of our manufacturers and dealers in chemicals.

16 Q. What does the term chlorine salt imply?

A. It implies a salt which has chlorine for one of its constituents. According to the more recent chemical theory, even hydrochloric or muriatic acid is a chlorine salt, it being a combination of chlorine and hydrogen dissolved in water.

17 Q. I find in answer to X Q. 56, Marchand's deposition, these words: "When I say bleaching I mean refining hair as well as feathers, as well as silk, as any bleaching process is positively, without any doubt, equivalent of any refining process for hair." What difference, if any, is there between such bleaching and refining process?

A. Within the meaning of the patent in controversy, the term "refining" is applied to the dissolving from the surface of the hair a portion of its substance and so reducing its diameter. Bleaching does not do this thing; or, in other words, does not remove from the surface of the hair portions of its material to reduce its diameter. The bleaching produces some chemical change in the constituents of the hair, which change involves a change of color, or perhaps decolorization.

(Counsel for defendant objects to answer as not responsive, and will ask to have it stricken out.)

18 Q. Have you examined Defendant's Exhibit No. 1, Dec. 4, 1883, in this case?

A. I have.

19 Q. What do you find it to be?

A. I find it to be rotten, technically speaking. This was handed to me by defendant's counsel on my first examination. I have recently examined it under a microscope, and find it to be hair which has been treated by some chemical agent or agents which have not removed the original surface of the hair, but have softened
90 its material substance so that it breaks more readily than does natural hair, and is also more easily extended by pulling; its elastic limit is less, and the cohesion of its particles has been badly deteriorated.

20 Q. Please state the points of difference, if any, between the hair in this bunch, Defendant's Exhibit 1, and hair refined under the process described in Béné's patent.

A. It is coarser; has less luster. The barbs or scales of the hair have not been removed. These barbs or scales are more protuberant. The hair has been swollen, probably during its treatment, and has shrunken so that it is not evenly cylindrical, but flattened along its length. It has less strength for equal diameters; it breaks much easier. These qualities distinguish it from the hair refined by the process set forth in Béné's patent in controversy. This is not refined hair, within the meaning of that patent.

(Def't's counsel objects to the last sentence of answer, beginning "This is not refined hair," &c., as not responsive to the question and incompetent.)

21 Q. Supposing this hair to have been originally Chinese hair, by what term would it be properly designated?

A. Badly bleached Chinese hair.

22 Q. Will you make a sketch on the paper I now hand you of one of the hairs in Defendant's Exhibit No. 1, Dec. 4, '83, as it appeared to you under the microscope?

A. I will, and will bring it with me at the next session in this cause.

23 Q. Have you examined the hair in Defendant's Exhibit Marchand No. 6, May 24, '84, in this cause, microscopically?

A. I have.

24 Q. Please state the result of such examination.

A. I found it to be substantially like the Defendant's Ex-
91 hibit No. 1, about which I have just testified. It seemed to average a little stronger as to its power of resisting tension.

25 Q. Have you examined the hair, Defendant's Exhibit Marchand No. 1, April 23, '84, in this cause, under the microscope; if so, with what result?

A. I have. It consists of seven bunches of various shades of hair. They have not had their original surfaces removed and are flattened as though shrunken, and do not average in strength with refined hair of like diameter. The very points of the scales on the hair seem to have been removed, or they have shrunken away so that they are not as protuberant as is natural, on the average.

26 Q. Is the hair in this bunch, Exhibit Marchand No. 1, as fine as the average of refined hair you have seen?

A. I think not.

27 Q. Have you examined the hair in Defendant's Exhibit No. 2 Marchand, April 23d, '84, in this cause? And, if so, state the result of such examination.

A. I have. There are six bunches in this exhibit, of different shades, from light to dark. They are very slightly, if at all, changed from their natural condition. One of the bunches, if affected at all by any chemicals, is so slightly affected that it cannot be distinguished from natural hair. It is not refined hair, within the commercial meaning of the term or within the meaning of the term in the patent in controversy.

28 Q. Have you examined the hair in Defendant's Ex. No. 3 Marchand, April 23, '84, under the microscope, in this cause; and, if so, with what result?

A. I have. There are ten bunches in this exhibit, and they are substantially alike. The description I have given of the Exhibits 1 and 2 Marchand apply in substance to this exhibit also. They
92 seem to have been submitted to some chemical treatment, which has somewhat affected the surface of the hair, but has not removed the scales entirely. The hair is more or less shrunken and some of it is quite rotten.

Adjourned by consent to August 28, 1884, 10 a. m.

J. HOMER HILDRETH,
N. P. and Spec. Ex'r.

NEW YORK, *August* 28, 1884—10 a. m.

Met pursuant to adjournment.

Present: Counsel as before.

Direct examination of witness KEITH resumed:

29 Q. Have you brought the sketch referred to in 22 Q. at last session?

A. I have. It is figure 1 on the sheet of paper I now produce.

(Witness hands counsel for complainants a sheet of paper containing three sketches marked Fig. 1, Fig. 2, Fig. 3.)

30 Q. What does the sketch marked Fig. 2 on this paper represent?

A. It represents natural human hair.

31 Q. What does the sketch Fig. 3 represent?

A. It represents refined human hair. I mean by refined hair hair which has had its original surface removed by solvent action.

(Papers offered in evidence and marked Compl'ts' Ex. Keith, three sketches, Aug. 28, '84, J. H. H., N. P. and Spec. Ex'r.)

32 Q. What are the dark shades on Fig. 1 meant to represent?

A. The irregular or zigzag circumferential lines represent the scales or barbs of the hair; the other shadings are intended to represent rotundity and depression, as conventionally used in drafting.

33 Q. What especially do the dark shadings at a distance from the edges of the sketches represent?

93 A. Depressions of the surface; the hair is very irregularly cylindrical.

34 Q. Are these depressions what you have referred to before as flattened portions of the surface?

A. They are.

35 Q. Have you examined the hair in complainants' exhibits on file in this cause under the microscope, including the specimens of refined hair?

A. I did; referring to those I testified about in my examination-in-chief.

36 Q. Have you seen Defendant's Exhibit Marchand Drawing, May 24, 1884, introduced in evidence?

A. I have, and now hold it in my hand.

37 Q. Will you state whether, in any of the exhibits you have examined under the microscope, you have found any hair resembling such drawings? And, if so, specify and describe it.

A. I have not. I have seen specimens of hair carrying dirt upon its surface, which an inexperienced observer might naturally suppose and represent in drawing as part of the hair. In such case the projections from the lines of this exhibit "drawing" might represent the adhering particles of dirt, such as sand, oil, and fibers.

(All that part of answer after words "I have not" objected to as not responsive to question, and counsel for defendant will ask to have it struck out.)

28 Q. On what kinds of hair have you seen such appearances under the microscope?

A. I never saw any hair which had such knobs and projections of its substance on it. I have seen dirty hair which had adhering particles of various materials, which might be considered by the careless or inexperienced observer part of the substance of the hair and be represented by such observer in a drawing, which would resemble Defendant's Exhibit Marchand Drawing, May 24, 1884. I have seen the appearances described in this answer on Chinese
94 and American hair, and upon refined hair of unknown origin, when the hair was dirty, and, of course, unfit in that state for examination of its surface under the microscope.

39 Q. Would or would not an inexperienced microscopist be liable to be deceived by such appearances?

A. He would if very inexperienced.

40 Q. Have you made any experiments with reference to refining hair after the methods described by Mr. Marchand in his evidence heretofore given for the defence in this cause?

A. I have.

41 Q. Will you state fully and in detail the results of such experiments, and commence first with his process described in answer to Q. 14 and X Q. 139, with those following?

A. I did test the process testified to by Mr. Marchand, and carefully preserved the specimens of hair so treated, and have them here with me. The result of the first process as described in his answer to Q. 14 I now produce.

(Same is offered in evidence by complainants' counsel and marked Complainants' Exhibit Keith Experiment No. 8, chlorine gas solution, J. H. H., N. P. & Spec. Ex'r, Aug. 28, 1884.)

Witness continues: The hair of this exhibit is Chinese and is in no sense refined; its original surface has not been removed; it is of uneven color, and is still coarse; it is very deficient in strength and has a rough, harsh surface, and very sensibly so to the sense of feeling. The small bunch or pad of hair attached to this exhibit and part thereof is the combing of the hair, produced in the usual process of combing refined and other hair to bring it into merchantable condition or shape. The hair was originally black. The bath of chlorine water or solution to which it was submitted changed the color to a reddish brown, and the subsequent bath of peroxide of hydrogen brought it to its present color.

95 42 Q. Did you follow any formula in making this experiment? And, if so, state what it was and where you obtained it.

A. I did; I obtained it from Mr. Marchand's testimony on behalf of the defendant in this cause, as given in his answer to Q. 14 and X Q. 139 and the answers connected therewith.

43 Q. Will you now refer to process described in answer to Q. 16, Marchand's deposition, and describe your experiment in connection therewith?

A. I took some Chinese hair and submitted it to the process set

forth in answer to Q. 16, Mr. Marchand's testimony, and followed the formula as set forth there and the explanatory answers connected therewith, and especially answer to X Q. 157, and produced under that formula and the treatment upon the hair which I so treated. The result, as exhibited by the sample, I now produce and hand to the examiner.

(Same offered in evidence by counsel for complainants and marked Complainants's Exhibit Keith Experiment No. 7, permanganate of potash, sulphuric and muriatic acid, J. H. H., N. P. and Spec. Ex., Aug. 28, 1884.)

Witness continues: The treatment by permanganate of potash, sulphuric and muriatic acids did not change the hair in color to any appreciable extent, but rendered it harsh to the touch and brittle. The original surface was not removed, and the hair is not appreciably smaller in diameter. The wad attached is also part of the exhibit and is the combings of the hair. This combing was done as is usual in the trade for bringing hair into commercial shape. The color of the hair is very ununiform, and it seems to have lost entirely all merchantable qualities.

44 Q. Please now refer in like manner to your experiments in reference to answer to Q. 17 in Marchand's deposition in this cause, before referred to.

A. I took some Chinese hair and submitted it to the pro-
96 cess described in answer to Q. 17 and in X Q. 165, and the related and explanatory answers connected therewith, following the successive steps precisely and carefully. The hair which I so treated I now produce.

(Same offered in evidence by complainants' counsel and marked Complainants' Exhibit Keith Experiment No. 1, alternating process, J. H. H., N. P. and Spec. Ex., August 28, 1884.)

Witness continues: The treatment in permanganate of potash solution and sulphurous acid solution changed the color of the hair very slightly; the treatment by peroxide of hydrogen brought it to its present color. The hair is very uneven in the individual characteristics of its separate fibers. Some have their original surfaces partly removed, but unevenly so; some have deep depressions like indentations in their surfaces, and some seem to be entirely unaffected, so far as the removal of the original surface is concerned, but in the aggregate the hair has lost its integrity of texture, so that it is brittle and defective in strength. This last is shown by the large percentage of combings in the wad of them which is part of the exhibit. This sample exhibit has lost commercial value for the purposes for which human hair is used.

45 Q. Did you make any experiment in treating hair with chloride of lime, as referred to by Mr. Marchand in his deposition for defendant in this cause at Q. 10 and answer thereto, and X Q. 107 to X Q. 110, inclusive, and answers thereto? If so, state the results.

A. I did. I took some Chinese hair and submitted it to the ac-

tion of chloride of lime, as testified to by Mr. Marchand in his deposition inquired about, and have the hair so treated with me, and now produce it.

(Same offered in evidence by complainants' counsel and marked Complainants' Exhibit Keith Experiment No. 5, chloride of lime, Aug. 28, 1884, J. H. H., N. P. and Spec. Ex.)

97 Witness continues: This hair was black, but the treatment caused it to swell and partly to disintegrate and lose its integrity of substance, so that in washing, to free it from the chloride of lime solution, much of it floated away in minute jelly-like particles, which could not have been saved except by filtration or like method. That portion which is saved is the sample exhibit produced by me, and just offered in evidence. This exhibit is not refined hair in any sense, and of no value.

46 Q. Did you make any experiment with the chemicals composing the alternating process described in answer to Q. 17, Marchand's deposition, combined in one solution, as the witness Marchand says (X 39): "To get through the process quicker?" If so, state the result.

A. I did. I took some Chinese hair and submitted it to the action of the ingredients combined, as testified to by Mr. Marchand, and have the hair which was so treated with me, and now produce it.

(Complainants' counsel offers the same in evidence, and it is marked Complainants' Exhibit Keith Experiment No. 3, quick process solution, J. H. H., N. P. and Spec. Ex'r., Aug. 28, 1884.)

Witness continues: This hair was black before the treatment, and its color remained unchanged until it had been submitted to the action of peroxide of hydrogen; this agent has bleached it unevenly and slightly. The hair has not had its original surface removed and is coarse and brash to the touch, as well as brittle. This last fact is illustrated by the wad of combings produced and annexed to the exhibit, being the result of the usual combing, for the purpose of making it presentable for use in the trade, as in cases of experiments I have already testified concerning. It is somewhat weakened and is otherwise unfit for commercial purposes.

98 47 Q. Did you make any experiment with peroxide of hydrogen with the addition of ammonia? If so, state the result.

A. I did. I took some Chinese hair and submitted it to the action of peroxide of hydrogen to which some ammonia was added, and have with me the hair so treated, and now produce it.

(Same offered in evidence by complainants' counsel and marked Complainants' Exhibit Keith Experiment No. 6, peroxide of hydrogen and ammonia, J. H. H., N. P. and Spec. Ex., Aug. 28, '84.)

Witness continues: This hair is simply bleached. Its original surface is not removed, and it is about as strong as it was before treatment. The small wad of hair is the combings and part of ex-

hibit, produced in combing the hair, as I have testified regarding the previous exhibits offered.

48 Q. Will you compare the hair in this Exhibit Keith No. 6 with the hair in Defendant's Exhibit No. 1 and Defendant's Exhibit No. 6 Marchand, and state how they compare as to coarseness and generally?

A. The defendant's exhibits are coarser and have less luster. They look more like jute than they do like hair. They have been, I judge, partly disintegrated by the treatment to which they have been exposed, and have so far lost their natural characteristics. They have less strength than the strength of the hair of the Exhibit Keith No. 6, and they are more easily extensible with less elasticity, meaning by this last term capacity for recovering former dimensions after extension.

49 Q. The witness Marchand in his answer to question 44 says: "Sulphuric acid, when it is put in contact with bichromate of potash, will set free some oxygen, chromic acid, and will act on the hair as an oxidizing agent and spoil generally the texture of the hair." * * * "The nitric acid will transform the hair partly into
99 picric acid." Then, in answer to question 46, "Do you mean that that combination of chemical agents entirely destroys the texture of the hair?" he says: "Yes, sir." Please state whether you made any experiment with nitric and sulphuric acids in contact with bichromate of potash, according to the specification in Béné's patent; and, if so, with what result.

A. I did. I took some Chinese hair and dipped it a few times into a mixture of muriatic acid and chlorate of potash, to which was added two ounces of sulphuric acid and an ounce of bichromate of potash. The dipping was in all respects like that usually practiced in the act of refining hair under Béné's process, and the hair so treated I have with me and now produce.

(Same offered in evidence by complainants' counsel and marked Complainants' Exhibit Keith Experiment No. 9, sulphuric acid, J. H. H., N. P. and Spec. Ex'r, Aug. 28, '84.)

Witness continues: For the purpose of showing as fully as possible the results of the treatment of the hair, I only dipped a little over half of it into the refining bath. The end around which the red cord is tied is the hair in its natural state. The other end, besides refining, was bleached, as is usual in the trade, by the use of peroxide of hydrogen. Midway between the two ends the hair remains as it was after having been refined and before bleaching. That part that is bleached was like that midway part before bleaching. This refined portion seems to be in as good a condition as hair which is refined without the addition of sulphuric acid and bichromate of potash. I also took some Chinese hair and treated it in every respect as I did the hair about which I have just testified, with the exception of substituting two ounces of nitric acid for the
100 two ounces of sulphuric acid. The remarks which I made about the Exhibit Keith Experiment No. 9 apply to this sample which I now produce.

(Same is offered in evidence by complainants' counsel and marked Complainants' Exhibit Keith Experiment No. 10, nitric acid, J. H. N., N. P. and Spec. Ex'r, Aug. 28, '84.)

50 Q. Look at the bunches of hair I now show you and state what they are.

A. There are two bunches, and they are parts of the hair which was taken for the purposes of these experiments about which I have testified to-day. They have received no treatment except washing, and are Chinese hair.

(Same are offered in evidence by counsel for complainants and marked, respectively, Complainants' Exhibit Keith Experiment No. 2, Chinese hair, and Complainants' Exhibit Keith Experiment No. 4, Chinese hair, J. H. H., N. P. and Spec. Ex'r, Aug. 28, '84.)

51 Q. Will you look at Defendant's Exhibit 4 Marchand and state whether you have examined it under the microscope; and, if so, with what result?

A. I have; it consists of three bunches and is refined hair—that is, the original surface has been removed by solvents.

52 Q. Is there any appreciable difference between the three bunches forming the bundle Defendant's Exhibit Marchand 4; and, if so, what is it?

A. There is in color, and the one marked "Jeantet 1" is a little finer than are the hairs of the other bunches.

53 Q. In making the experiments you have been testifying to how much time did you devote to the preparation and completion thereof?

A. The greater part of four separate days.

54 Q. Where did you obtain the chemicals and where were the experiments made?

A. They were obtained from the drug and chemical stores of Lazell, Marsh & Gardiner and Wm. H. Schieffelin & Co., and
101 from a drug store in Brooklyn, in Fulton street, opposite Mr. Béné's establishment. The experiments were carried on in his laboratory.

55 Q. Who assisted you in the experiments and manipulations?

A. Sam. Tro. Smith, Esq., complainants' counsel, and Mr. John Béné, one of the complainants in this cause, and I believe that the combing was done by one of the men employed by Mr. Béné. All the manipulations were carried on under my immediate and direct supervision and direction, with due care, such as I deemed necessary to enable me to swear positively as to the facts in the case. Nothing relating to these exhibits was allowed to be done out of my sight, and when I left the room or the building I took the exhibits with me, and they have been constantly in my possession from the beginning of the experiments to the present day, with one exception, and that was and is the chloride-of-lime experiment, which, from its nature, could not be carried on during my presence and could not be well taken about by me; therefore I took the precaution in leaving

it to seal it securely, so that if tampered with I would get knowledge of it on my return.

56 Q. How long a time was occupied in trying the actual chemical experiments conducted under Marchand's formulas?

A. The alternate dipping experiment took one hour and one-half in the dipping; the bleaching took some number of hours—I forget how many at present.

The quick process—that is, where the permanganate of potash and sulphuric acid were missed—took one hour in the treatment by this mixture. The bleaching was done at the same time and took the same length of time as the just preceding mentioned experiment.

The chloride-of-lime experiment last about 36 or 40 hours.
102 There was no bleaching by peroxide of hydrogen in this experiment. The experiment with peroxide of hydrogen and ammonia lasted an hour or, perhaps, two; I have not the exact time. The experiment with permanganate of potash and sulphuric acid and muriatic acid lasted two hours, and the bleaching by peroxide of hydrogen in this experiment lasted the same time as the others named, and was carried on at the same time. The solution of chlorine experiment lasted about three hours. The bleaching part of this experiment lasted the same length of time as the other bleachings. The treatment by the mixture of muriatic acid, chlorate of potash, and sulphuric acid with bichromate of potash lasted only a few seconds, and the experiment with the mixture of muriatic acid, chlorate of potash, and nitric acid with bichromate of potash also lasted only a few seconds. The bleaching of the samples of the two last-named experiments was done at and in the same time as the other bleachings.

57 Q. From your knowledge of the structure and nature of hair and the nature of the chemicals used in these various experiments for the purpose of reducing the size of the hair, will you state what would, in your opinion, be the effect as to injuring the hair of submitting it for any length of time greater than a few seconds to the action of the agents stated herein?

A. The agents used in the experiments illustrated by the Exhibits Keith Experiments Nos. 9 and 10 would, within the time of one minute, entirely destroy the texture of the hair. The material used in the experiment illustrated by Keith experiment No. 5—that is, chloride of lime—would gradually disintegrate the hair without dissolving its substance from the exterior surface, but to completely disintegrate it so as to be unrecognizable two or three days' time might be taken.

With the chlorine solution experiment, as illustrated by Exhibit Keith Experiment No. 8, the hair swells and absorbs water
103 and, possibly, other constituents of the solution, seemingly gradually disintegrating, though, in my judgment, it would take repeated applications of the solution to disintegrate it, although the hair is injured even by the first application. I cannot now form an idea as to how long it would take the other solutions to disintegrate the hair, but the exhibits illustrating the results of the

experiments with such solutions show that they have injured the hair, and in the particulars which I have set forth in previous answers. These experiments were all conducted as to time after the formula set forth by Mr. Marchand in his testimony, except, in cases where he did not give directions of treatment, I used my judgment as to the time proper to be taken. For instance, the experiment illustrated by Exhibits Keith Experiment Nos. 9 and 10 would have been unduly prolonged if the treatment continued beyond the time necessary for removing enough material of the hair to reduce the diameter to the desired extent.

Adjourned by consent to Sept. 11, 1884, 11 a. m., at same place.

J. H. H.,
Spec. Ex.

NEW YORK, *Sept.* 11, 1884.

Met pursuant to adjournment.

Owing to unexpected absence of the witness Keith from the city, further hearing adjourned by consent to Sept. 16, 1884, same place, 11 a. m.

J. H. H.,
N. P. & Spec. Ex.

NEW YORK, *Sept.* 16, 1884.

Further hearing adjourned to Sept. 23d, 1884, witness still being absent.

J. HOMER HILDRETH,
N. P. and Spec. Ex.

104 NEW YORK, *Sept.* 23, 1884.

Hearing again adjourned, owing to continued absence of witness, to Sept. 25, 1884, 11 a. m.

J. H. H.,
N. P. and Spec. Ex.

NEW YORK, *Sept.* 25, 1884.

The witness still being absent, hearing further adjourned to October 6th, 1884, 2 p. m.

J. H. H.,
N. P. and Spec. Ex.

NEW YORK, *Oct.* 6, 1884.

Witness telegraphs he will return to the city and be ready to submit to further examination on Oct. 13th, 1884, 2 p. m. Adjourned accordingly to that day and hour by consent.

J. HOMER HILDRETH,
N. P. and Spec. Ex.

NEW YORK, *Oct.* 13, *A. D.* 1884.

Met pursuant to adjournment.
Present: Counsel as before.

Direct examination in rebuttal of witness KEITH resumed by counsel for complainants:

58 Q. From your experiments heretofore described by you what, if anything, did you learn as to the practicability of the methods of refining hair referred to by the witness Marchand in his answers to QQ. 14–16 and 17 of his testimony in this case?

A. I learned that these processes would not effect the refining of hair, and that they were thoroughly impracticable for carrying out such an intention.

59 Q. Will you name one or more special features in which all his so-called treatments are failures?

105 A. They failed to remove from the surface of the hair, uniformly, enough of its material to reduce its diameter and at the same time preserve the integrity of that portion of the hair which underlies the outer original surface. This is the essential feature of a commercial process for refining hair.

60 Q. Please state whether or not you have found in any of your experiments any practical method of refining hair by the use of chemicals, without the use of some compound or mixture containing chlorine; and, if yea, describe the mixture.

A. I have not found any such mixture.

61 Q. What is the essential requisite of successful refining of hair by chemicals, as regards the time occupied in the operation?

A. It should be effected so speedily that the solvent does not have time to penetrate deeply below the surface, to disintegrate the substance of the hair lying beneath the surface directly exposed to its action.

62 Q. Will you state definitely what you mean by "so speedily," namely, whether it may be seconds, minutes, or hours employed?

A. It should be done in a very few seconds. I have no reason to believe that any solvent of hair which requires minutes in time for action is of any practical value in the art in question.

63 Q. Please state briefly the effect of a solution of peroxide of hydrogen on hair.

A. It simply bleaches the hair. Incident to this bleaching there is some subsequent contraction of the hair in dyeing, thus producing a wrinkled surface.

64 Q. Mr. Marchand, in aswer to Q. 56 of his testimony, used the following language: "The loss of weight being a positive proof of what I say." Is the loss of the weight a positive proof of reduction of the hair in diameter, as stated by Mr Marchand?

A. No, sir—that is, provided that it is assumed that Mr. Marchand said in his answer that the loss of weight is positive proof that the hair has been refined and reduced in diameter. He says

106 they "are refined, since there is loss in their weight, and that the loss of weight is a positive proof." They may lose weight without changing diameter, in my judgment.

65 Q. Is microscopy an art which requires study and experience in order to obtain useful and certain results?

A. It requires experience to obtain skill in the use of the microscope and the knowledge of the appearances of materials with which substances to be examined thereby are to be compared.

66 Q. What experience have you had with microscopy?

A. An experience extending from boyhood to the present time.

67 Q. State whether or not you ever met with any appearances similar to those shown in Defendant's Exhibit Marchand Drawing, in evidence May 24, 1884, and what a careful examination showed them to be.

A. I have not met with appearances such as those implied by the protuberances of the said drawing. The drawing represents them as a part of the substance of the hair itself. To a casual or unskilled observer extraneous substances upon the hair sometimes present a similar appearance. A careful washing of the hair, which a careful microscopist would perform before observation, will remove such particles of dirt, grease, or dust and leave the hair fit for examination. My observation of appearances, such as I suppose are implied by the drawing, showed me that the supposed protuberances are dirt and the like.

68 Q. Taking into consideration your knowledge of chemicals and of the nature of hair and your experiments in connection therewith, what do you regard the prime essential feature in the successful refining of hair by the use of solvents, keeping in view the value of the refined hair for toilet purposes and other uses to which it is applied?

A. Having the hair to be refined, the prime essential feature is a solvent for it which will act so speedily in dissolving from the
107 surface of its substance that the hair is reduced in diameter to the desired extent without materially affecting that portion of its substance which remains after treatment. After many experiments with many substances I can say that, so far as the art now exists, chlorine and some of its compounds seem to be essential constituents of the solvent which must be used.

(Defendant's counsel objects to the last sentence of the answer as irresponsive.)

Adjourned by consent to Oct. 15, 1884, at 2 p. m., for cross-examination.

J. HOMER HILDRETH,
Notary Public and Spec. Examiner.

NEW YORK, *Oct* 15, 1884.

Met pursuant to adjournment.

Present: Counsel as before; and thereupon the witness KEITH, being cross-examined by counsel for defendant, testifies:

69 X Q. At what period of time, relative to combination of a chlorine salt and muriatic acid, would you say there was a solution of their component parts?

A. I don't understand the question.

70 X Q. At what period of time, relative to combination of a chlorine salt and muriatic acid, would you say there was a solution of their component parts, at the instant of their union or after the mixture has ceased to be an active effervescent condition?

A. When the salt is placed in the acid its dissolution begins, and continues until the crystals of the salt have disappeared. The time of this operation depends upon the size of the crystals.

71 X Q. When the crystals of salt have entirely disappeared do you call the liquid mixture remaining a solution?

A. I do.

108 72 X Q. Of what is it a solution at that time?

A. Ordinarily it would be called a solution of the chlorine salt. It is a solution of the constituent parts of the chlorine salt.

73 X Q. Then, as I understand you to say, all the constituent parts of the chlorine salt are present in the solution after the crystals of the salt have entirely disappeared?

A. I did not say so.

74 X Q. I call your attention to your preceding answer to this question as to whether the liquid mixture remaining after the crystals of salt had disappeared was a solution, and you answered that it was a solution of the constituent parts of the chlorine salt. Did you not have reference to all of the constituent parts?

A. I had reference to some of each of the constituent parts, not to all of the constituent parts, meaning by this latter phrase every portion of each of the constituent parts.

75 X Q. How long would this liquid mixture remaining after the crystals of salt had disappeared be properly termed a solution of chlorine salt and muriatic acid?

A. Long enough for practical purposes. The length of time I cannot tell. The length of time depends a great deal upon such conditions as quantities, temperature, exposure, shape of container, and other conditions. In practice it remains such a solution for a sufficient length of time.

76 X Q. What is the value of such a solution, after the crystals of salt have entirely disappeared, for the purpose of refining hair?

A. I don't know.

77 X Q. Have you ever experimented to learn?

A. No.

78 X Q. Have you ever, yourself, refined any Chinese hair?

A. I do not recall that I ever did, by my own hand, perform the dipping operation, but I have refined hair at times when I

109 controlled absolutely the manipulations which were performed by others.

79 X Q. Did you, by your own hands, attempt to carry out the methods suggested by Mr. Marchand of refining hair?

A. I did.

80 X Q. And did you perform the dipping operation then?

A. I did.

81 X Q. Does it not require expert skill to dip hair in the refining bath?

A. It requires some skill to perform any operation; but it requires no more skill or experience than I possess to perform the operation of refining hair.

82 X Q. And yet was not this the first occasion of your ever dipping hair in the bath for the purpose of refining?

A. This dipping was for the purpose of testing the truth of Mr. Marchand's statements. The dipping failed to refine the hair, even though his directions for carrying out his alleged processes were followed to the letter. Dipping a substance in a liquid requires very little skill. The number of dippings is determined in the case of refining hair by the extent of the action which is desired. Mr. Marchand, in his testimony, gave specific directions as to the number of dippings, with time, temperature, and like conditions, which were followed with the results which I have exhibited and testified about. No amount of skillful dipping in and out, with all the flourishes incident to presumed skill, would have changed the result. I had dipped hair into various liquids previous to that time for the purpose of learning whether these liquids would refine hair, so this was not the first occasion of dipping hair for the purpose of learning whether the liquid into which the hair was dipped would refine hair.

(Defendant's counsel moves to strike out the words "I had dipped hair in various liquids previous," etc., as not responsive to the question.)

110 83 X Q. What liquids had you dipped hair into, previous to that time, for ascertaining whether they would refine hair?

A. Solutions of caustic potash, of caustic soda, of chlorine, of muriatic acid, and of chloride of lime.

84 X Q. Do you not know that the action of either of these solutions named is so speedy as to require some special skill in dipping hair therein?

A. I do not believe that any skill at all will assist these solutions to refine hair. They do not refine hair either speedily or otherwise.

85 X Q. When the oxidizing action of the solution on the hair is swift and violent, do you not think it requires great skill in manipulating hair therein lest it be destroyed for all commercial purposes?

(Objected to as irrelevant and improper, because Mr. Marchand puts no stress on manipulation and uses the term dipped but once; in all other cases he simply says, I put the hair.)

A. I do not. It requires a knowledge of the time necessary under the conditions, and I have no doubt that a careful man of ordinary intelligence could perform the dipping operation successfully after once having seen the operation. When the processes are slow, taking an hour or more, as in Mr. Marchand's alleged processes, skill in dipping or placing in the solution is not of the slightest importance.

(Defendant's counsel moves to strike out all that portion of the answer after the words "after having once seen the operation" as not responsive.)

86 X Q. Did you have Mr. Marchand's deposition with you at the time of the experiments regarding his methods at complainant Béné's place of business?

A. I had a printed copy of it.

111 87 X Q. Now, as to the method described by Marchand as his answer to Q. 14 and your test under it, how long did you permit the hair you treated to remain in the solution?

A. I let it remain until the chlorine was exhausted, according to his directions given in answer to 139 X Q. and explanatory of his answer to Q. 14. I then submitted it to new solution of chlorine, and left it therein until that also had exhausted the chlorine. The operation lasted about two hours, as I now call to mind.

88 X Q. Did you then regard the hair as sufficiently oxidized or refined?

A. I regarded the hair as sufficiently oxidized and spoiled, not refined.

Adjourned by consent to Oct. 18, 1884, 12.30 o'clock.

J. H. H.,
N. P. and Spec. Ex'r.

NEW YORK, *October* 18, 1884.

Met pursuant to adjournment.

Present: Counsel as before.

Cross-examination of witness KEITH resumed:

89 X Q. With reference to the experiment under the method described by Marchand in his answer to Q. 14, why did you submit the hair to a new solution of chlorine, as you have just said?

A. Because he, in his answer to X Q. 139, stated that he submitted his sample, Def't's Exhibit No. 1 Marchand, to a second solution of chlorine. I was following his course of procedure.

90 X Q. But he says in his answer, to which you refer, that his second solution was not so strong. Did you observe this in your test?

A. I did.

91 X Q. How did you reduce the strength of the solution?

A. I had it made less strong.

92 X Q. By what means?

112 A. In making the solution less chlorine was admitted or absorbed.

93 X Q. Describe all the steps taken by you, in their regular order, for the preparation of this concentrated chlorine gas solution, the ingredients or materials used, and the relative quantities of each.

A. I bought both the first and second solutions; the first ready prepared and the second made to my order.

94 X Q. When did you buy them, and under what commercial name was the first sold? And state the language given by you in the order for the manufacture of the second.

A. I bought the first from Schieffelin Bros. & Co., corner of Beekman and William streets, in New York city. The second was made at a drug store at Fulton street, Brooklyn, opposite Mr. Béné's shop—I mean on the opposite side of Fulton street, a short distance from Mr. Béné's. I ordered simply chlorine water in both cases. In the second case I intended to reduce the solution by the addition of water, if it was too strong.

95 X Q. Then, if you bought both solutions under the same name, how was one reduced in strength for the purpose of the bath?

A. The strength of the chlorine water when open to the atmosphere or subject to its normal pressure is less in hot weather than in cold. The weather was very warm, and the solution then prepared naturally contained less chlorine than did that which was under pressure in a strongly corked bottle, as was the case with the first lot, which was prepared at some other time.

96 X Q. Then, you personally did nothing towards reducing the strength of the solution you purchased in Fulton street?

A. I did not personally reduce its strength. I will state that no matter what the strength of the solution was it would not have refined the hair. If the stronger solution did not dissolve it
113 the weaker could not have done so. In fact, the statement about the two strengths of the solution is of a nature to misguide, and is of no importance, in truth.

(Defendant's counsel moves to strike out all that portion of the answer after and including the words "I will state," as not responsive.)

97 X Q. How did you test as to whether the hair in the bath, under this formula given by Marchand, had been properly or efficiently refined?

A. By ocular obversation.

98 X Q. Is it an observation such as any one can make, independent of being an expert regarding hair?

A. Yes; any one could have seen whether the hair was reduced in diameter.

99 X Q. Have you stated how long this hair remained in the bath of the first solution; if so, how long was it?

A. It remained until the chlorine was exhausted. I believe it was about an hour. I think I made this statement before.

100 X Q. What indicated the fact that the chlorine was exhausted?

A. The absence of the characteristic odor of chlorine.

101 X Q. Anything else?

A. There was a change in the color, but the absence of odor was the test relied upon. I will state that chlorine evaporates quite rapidly from its aqueous solution when left unsealed. I will also state that the addition of carbonate of soda and a small quantity of

ammonia, as stated by Mr. Marchand in his answer to X Q. 139, acted to form compounds, common salt in one case and sal-ammoniac in the other, which compounds have no effect upon hair
114 and a formation of which removes the equivalent of chlorine necessary to form them from that which is in the solution.

(Defendant's counsel moves to strike out of the answer all that portion following and including the words "I will also state" as not responsive to question.)

102 X Q. How long did the hair remain in the second solution of which we were just now speaking?

A. About one hour. I will state that the longer it remained in the solution, provided the chlorine was not exhausted, the worse it would look.

(Defendant's counsel moves to strike out, as not responsive to question, all that portion of answer following and including the words "I will state.")

103 X Q. What difference, if any, did you note in the appearance of the hair after immersion in these two solutions?

A. The hair appeared more swollen and more rotten after the second bath than it did after the first. It also was a little more changed in color—towards a lighter color, or somewhat more bleached.

104 X Q. Did it remain in the second solution until the chlorine was exhausted?

A. It did.

105 X Q. Does not hair naturally swell in size when subjected to liquid immersions?

A. Whether yes or no depends upon the liquid into which the hair is immersed.

106 X Q. What do you mean by the term rotten, as applied to hair?

A. More or less disintegrated throughout its substance.

107 X Q. What amount of ammonia did you put in the bath?

A. A small quantity, as Mr. Marchand stated—that is,
115 about one ounce of ammonia water to two gallons of chlorine water—the amount that Mr. Marchand stated in his answer to 142 X Q.

108 X Q. How many tests or experiments with Marchand's formulas did you try altogether?

A. One of each—eight in all—and the products of which experiments I have submitted as exhibits in this case.

109 X Q. Do you wish to be understood as saying that the hair submitted to the first solution of Marchand's formula, and which hair is identified as Complainants' Experiment No. 8, was swollen and rotten after submission to that first solution?

A. I do; but not to the extent that it was after treatment in the second solution.

110 X Q. Do you appreciate any difference between the ordinary

"chlorine water" and concentrated "chlorine gas solution?" And, if so, please state what difference.

A. The ordinary chlorine water of the shops and pharmacists is a concentrated solution in the sense that it has in it more chlorine than is readily retained at ordinary temperatures except under pressure. The term concentrated chlorine gas solution is very indefinite, because the degree of concentration is not stated. It would be impossible to use practically, under the conditions laid down by Mr. Marchand, a stronger solution than the commercial one that I used in the first bath.

111 X Q. What are the conditions to which you refer which render such use impracticable?

A. Simply the condition stated by him in his various answers relating to the chlorine treatment, notably those to 14 Q. and 139 X Q. and answers bearing thereon.

112 X Q. How do such conditions interfere with or render impracticable the use of a concentrated chlorine gas solution?

A. I did not say they did. I did say they interfere with the use of a stronger solution than the one I used. The reason why stronger solutions could not be practically used is on account of the
116 speedy evaporation of the chlorine, reducing the strength rapidly, so that, in a very few minutes at the most, within the times of treatment the solution would cease to be a concentrated one in any sense. In fact, the stronger the solution the worse for the hair.

113 X Q. What is principle of this chlorine gas solution that is so injurious to the hair; can you state?

A. Slowness of action mainly.

114 X Q. Do I understand you to mean that the more highly concentrated chlorine gas solution the less speedy its action in oxydizing the hair?

A. I have not said so or implied so.

115 X Q. What, precisely, do you mean, then, by saying "the stronger the solution the worse for the hair?"

A. I mean that the more concentrated the solution the more chlorine there will be in it and the more chlorine will have access to the hair during the one, two, or three hours of treatment, according to Mr. Marchand, and, consequently, the hair will be more injured by the action of the bath, because of the longer-continued action of the active chemical of the bath upon the hair.

116 X Q. In other words, the more highly concentrated the chlorine gas solution the less time it will require to oxydize the hair?

A. I mean, in other words, the more concentrated the chlorine gas solution the less time it will take to ruin the hair for commercial purposes. I have not undertaken to consider the oxydation of the hair, but only its refining. Evidently oxydation is another name for ruination.

117 X Q. Do you recognize that an oxydizing action is effected in hair by the action thereon of chlorine gas?

A. It is very probable that such is the case. Where decompositions are effected and oxygen is present, as is the case in this bath,

oxydation may take place. In fact, bleaching is considered
117 to be oxydation induced by the presence and action of chlorine, and oxygen must be present to have oxydation take place.

118 X Q. Will you state the distinction, if any there be, between the oxydation and refining of hair?

A. In refining, portions of the hair are removed. In oxydation by bleaching materials, as in this case, the materials of the hair are not removed. Take, for instance, the oxydation of iron; the iron is not removed, but remains upon the surface of the iron in a condition called rust—oxide of iron. In fact, the iron piece, after rusting, weighs more than before, by the amount of the oxygen absorbed.

119 X Q. Do you mean to say that the subjection of hair to the action of chlorine gas and muriatic acid is not such an oxydation as that portions of the hair are not removed?

A. I have not stated anything of the kind. I have been testifying about chlorine water, which is a solution of chlorine gas, and the only one so called.

120 X Q. When hair is submitted to oxygen, liberated by the union of chlorine salt and muriatic acid, is there then such an oxydation that portions of the hair are removed?

A. Oxydation does not remove portions of the hair.

121 X Q. Describe the effect of oxygen upon a hair as you have noted it?

A. I have not noted it specifically, but it is probable that oxygen combines with some of the hair.

122 X Q. In refining hair is not its diameter lessened, and is not this effect owing in part, if not entirely, to the action of oxygen upon it?

A. Hair is reduced in diameter in refining. Whether the constituents of the hair are made soluble by oxydation, chlorination, or both, I cannot state. I do not think that oxydation or chlorination removes the substance of the hair, but merely prepares it for removal by the liquid of the bath.

118 123 X Q. Do you mean, by saying that hair is reduced in diameter by refining, to imply that its dimensions have simply shrunk in size or portions been removed?

A. Both.

124 X Q. Would you be able to say whether its size has been lessened rather by its contraction or the removal of a portion of its substance by the action of those chemicals?

A. The removal of some of the substance of the hair causes the shrinkage, but it is probable that such shrinkage is due to removal of the oil or liquids within the hair. Refined hair has had some of its portions removed by action upon the surface. I can tell by examination whether the original surface has been removed.

125 X Q. Is hair that has been refined as strong as it was in its natural condition?

A. It is not, considering each individual hair.

126 X Q. And to what do you attribute this loss of strength?

A. To its lessened cross-section.

127 X Q. Please explain more fully.

A. When the hair is reduced in diameter its cross-section is less in area, and consequently there are a less number of cohering particles in such cross-section; there being fewer cohering particles there is less cohesion, and therefore less tensile strength.

128 X Q. Do you attribute its loss of strength solely to that cause?

A. Practically, yes.

129 X Q. Then its loss of strength may be said to be solely caused by its lessened diameter?

A. Practically so with refined hair.

130 X Q. Do you not think that the use of the chemicals used in Béné's patent have a deleterious effect upon the texture of the hair as to affecting its tensile strength?

A. Not practically.

119 131 X Q. Do you not think that the removal of the original surface of the hair by the solvent action of chemicals has a deleterious and, though slight, a disintegrating effect and lessening to the tensile strength of the hair?

A. Each individual hair is less strong than before, because of removal of some of its substance, but practically the portion remaining as a product of the refining operation is not injured. The action is so speedy that the chemicals do not penetrate any of the substance of the hair which is not removed by the solvent action.

132 X Q. You mention in connection with your testimony regarding Defendant's Ex. 2 Marchand, April 23, 1884, that of those six bunches of hair in that exhibit one of the bunches of hair could not be distinguished from natural hair; are you now able to say which one of those six it was, so as to have it identified?

A. I believe I am able to do so.

133 X Q. Please indicate and have the examiner mark it.

A. I have done so; it is marked "Keith Exhibit for Identification, Oct. 18, 1884, J. H. H., N. P. and Spec. Ex'r."

134 X Q. Are you able to declare that this hair marked "Keith Exhibit for Identification" is not Chinese hair?

A. To the best of my belief, it is not.

Adjourned by consent to October 27, 1884, at 2 p. m.

J. H. H.,
N. P. and Spec. Ex'r.

NEW YORK, *Oct. 22d*, 1884.

Met pursuant to adjournment.

Present: Counsel as before.

Cross-examination of witness KEITH resumed:

120 135 X Q. What do you mean by saying that practically the portion remaining of the hair after the refining process is not injured?

A. I mean, for all practical purposes in the art, that it is salable and usable.

136 X Q. But, in fact, the character of the hair remaining is changed?

A. I do not think it is.

137 X Q. Do you so state only as a theory?

A. As a theory.

138 X Q. Then, so far as you know, the character of refined hair may have suffered some disintegration in its refinement?

A. It may, so far as I know, and as far as can be determined by any process I know of. It certainly is not practically disintegrated or injured.

(Counsel for defendant objects to last clause of answer as not responsive.)

139 X Q. I show you Defendant's Ex. No. 2 Marchand, April 23, 1884, and ask you whether you have examined this lot of hair by aid of the microscope?

A. I did.

140 X Q. Did you find the hair of each bunch of this lot substantially identical in character or appearance, or otherwise?

A. Otherwise.

141 X Q. Will you state how each bunch in the lot differed from the others?

A. In fineness, color, and superficial appearance.

142 X Q. Respecting the superficial appearance, describe how each differs from the other.

A. Some appeared to be corroded, some more than others, and one not at all.

143 X Q. By corroded I understand you to mean that the original surface of the hair has been removed?

A. I mean by corroded that some of the material of the
121 hair seems to have been removed unequally and in spots, while other portions have not been affected at all; like rusted iron, for instance.

N. S. KEITH.

Taken, subscribed, and sworn to before me this 22d day of October, 1884.

[L. S.] J. HOMER HILDRETH,
Notary Public and Special Examiner by Consent.

Complainants rest.

I, the undersigned, a special examiner duly appointed and acting in this cause by consent to take the testimony on behalf of parties litigant herein, and as well a notary public duly commissioned and qualified, do hereby certify that, on the several days named in the deposition hereto annexed and herewith transmitted, I was attended at my office, 291 Broadway, N. Y. city, N. Y., the place named in the notice, by counsel for complainants and defendant, and Nathaniel

S. Keith, the expert witness called by complainants in rebuttal, named in the aforesaid deposition; that the said witness was duly sworn and examined and his deposition duly taken and subscribed, as appears by the record; that the exhibits marked and likewise hereto annexed were duly introduced in evidence in said cause during the taking of the deposition to which the same belong, and still remain in the same condition as when so introduced before me, and are accordingly herewith duly transmitted to the files of the court.

I further certify that the foregoing record comprises complainants' complete rebuttal proofs for final hearing, and that I am not connected by blood or marriage with either of the parties litigant herein, nor interested, directly or indirectly, in the matters in controversy.

In testimony whereof I have hereunto set my hand and affixed my seal of office, at the city of New York, in the county and State of New York, this 22d day of October, A. D. 1884.

[L. S.] J. HOMER HILDRETH,
Notary Public and Special Examiner by Consent.

122 *Stipulation.*

U. S. Circuit Court, So. Dist. of New York. In Equity.

JOHN BÉNÉ and ADOLPH GRÜNBERG *vs.* EMILE JEANTET.

This cause having been noticed for final hearing, and being on the calendar of the court for the April term, 1884, and the time for taking proofs having expired, it is hereby stipulated that the defendant may take further testimony, to be used on the hearing with the same force and effect as if the same had been taken in due time, provided the same shall be taken and completed before the first day of May next, and provided that complainant shall have ten days after the first day of May next in which to take such testimony as he may be advised in rebuttal, and provided that the cause shall be heard when reached on the calendar on any day subsequent to May 1st at the option of complainants' counsel, and provided that the defendant shall pay the complainants' solicitor, on the execution of this stipulation, ten dollars costs, and shall also pay the costs of printing such additional brief as may be made necessary by the introduction of such new testimony.

New York, April 18th, 1884.

SAM. TRO. SMITH,
Solicitor for Complainants.
WM. P. S. MELVIN,
Solicitor for Defendant.

123 U. S. Circuit Court, Southern District of New York. In Equity.

JOHN BÉNÉ and ADOLPH GRÜNBERG, Complainants,

vs.

EMILE JEANTET, Defendant.

Depositions of witnesses to be used at final hearing in this cause upon the part of the defendant, taken before undersigned, a notary public, duly commissioned and qualified, and serving as special examiner by consent, under and pursuant to the annexed stipulation, dated April 18, 1884, marked Exhibit "A" of this date.

124 And now, on this 22d day of April, A. D. 1884, at 291 Broadway, N. Y. city, N. Y., duly appears counsel for complainant, Sam. Tro. Smith, Esq., and counsel for the defendant, William P. S. Melvin and De Witt C. Brown, Esqrs.

Counsel for defendant first called in his own behalf EMILE JEANTET, who, being duly sworn, testifies as follows:

1 Q. What is your name, age, residence, and occupation?

A. My name is Emile Jeantet; age, thirty-eight years; reside at New Brighton, Staten Island, N. Y.; I am a hair merchant, in New York city.

2 Q. At what street and number in New York city is your place of business?

A. 123 W. 15th street.

3 Q. How long have you carried on business at that place?

A. Four years.

4 Q. How long have you been in the business of a hair merchant or acquainted with human hair?

A. Seventeen years in the business and acquainted with human hair twenty years.

5 Q. Since the 25th March, 1879, have you ever treated, prepared, refined, or bleached any hair?

Obj. to as leading and immaterial.

A. I never treated any Chinese hair.

6 Q. Since the 25th March, 1879, have you been engaged in the business of treating, preparing, refining, or bleaching hair?

Same obj. as to Q. 5.

A. I bleached some European hair, but not Chinese.

125 Ans. obj. to as immaterial, because no claim is made for bleaching aside from the bleaching incidental to refining.

7 Q. Since the 25th March, 1879, have you refined any European or other hair?

Same obj. as to Q. 5.

A. No, sir.

8 Q. Were you present, Mr. Jeantet, on the 27th of September, 1883, in the office of Mr. Hildreth, who was then and is now taking the testimony in this cause, when the bill of the hair sold by you was put in evidence and marked Complainants' Exhibit 2 Krause, Sept. 27, 1883, and also when the three bunches of hair were put in evidence by complainants and marked Complainants' Exhibit 3 Krause, Sept. 27, 1883?

A. I was.

9 Q. Have you any recollection of selling those three bunches of hair?

Same obj. as to Q. 5.

A. No.

10 Q. Were you present at the office of Mr. Hildreth on the 1st day of October, 1883, when the five bunches of hair were put in evidence by complainants and marked "Complainants' Exhibit Krause" of that date?

A. Yes, sir.

11 Q. If those eight bunches of hair came from your establishment how and where were they procured or obtained by you?

Obj. to as immaterial, hypothetical, and inadmissible as evidence.

126 A. If the hair came from my establishment it must have been bought through a clerk. I procured or obtained them from Europe—Paris.

12 Q. Since you have been engaged in the hair trade have you sometimes bought hair personally in Paris when you were there?

Same obj. as to Q. 5.

A. Yes, sir.

13 Q. When did you first see hair like the eight bunches covered by complainants' exhibits on sale in the city of Paris, France?

Obj. to as immaterial and not bearing on the issue in this case, the only question at issue being the question of infringement.

A. I saw the hair in Paris in 1875, in the month of December, and I saw samples in New York made by Daniel Hausser in 1874.

14 Q. Was the hair you saw in Paris in 1875 and the samples you saw in N. Y. in 1874 in all respects like the eight bunches covered by complainants' exhibits in this case?

Same obj. as to Q. 13.

A. I believe they were the same, but as it was a new article I did not have much knowledge of it at the time.

15 Q. Do you now regard yourself as an expert in hair?

A. In European hair I do, but in Chinese hair I don't.

127 16 Q. What is your judgment now about the hair you saw in Paris in 1875 and in N. Y. in 1874 being identical in kind with the eight bunches covered by complainants' exhibits of eight bunches of hair?

Same obj. as to Q. 13 and as answered already.

A. I believe that they are the same quality of hair.

17 Q. Do you believe that they were prepared in the same manner substantially?

Same obj. as to Q. 16, and also because witness has not been shown to be competent as an expert to testify as to the preparation or the refining and bleaching of hair,

A. I don't know anything about it, because I never treated any Chinese hair.

No cross-examination.

E. JEANTET.

Sworn to and subscribed before me this 22d day of April, A. D. 1884.

J. HOMER HILDRETH,
Notary Public and Special Ex'r by Consent.

Adjourned by consent to April 23, 1884, 2 p. m.

J. H. H.,
N. P., Special Ex'r.

128 N. Y., *April* 23, 1884.

Met pursuant to adjournment.

Present: Counsel as before.

Counsel for defendant calls as a witness CHARLES MARCHAND, who, being first duly sworn, testifies as follows:

1 Q. What is your name, age, residence, and occupation?

A. My name is Charles Marchand; age, 36 years; reside — 20 East 16th St., N. Y. city, and a manufacturing chemist.

2 Q. How long have you been in that business?

A. Since 1871.

3 Q. How long have you been engaged in chemical studies?

A. Twenty-four years.

4 Q. In connection with your studies or in your business have you had anything to do with the bleaching or refining of human or other hair?

A. Yes, sir.

5 Q. Can you distinguish bleached or refined human hair from such hair in its normal condition?

A. Yes, sir.

6 Q. Have you examined the exhibits of hair in this case filed by complainants; and, if so, what, in your opinion, are they?

A. Yes, sir; I did a few minutes ago; that is the first time I examined it, and I must say this hair was submitted to the action of an oxidizing agent, but it is an impossibility to say which one was used to obtain that result.

7 Q. Do you know any oxidizing agents for bleaching or refining hair? And, if so, state what agents you know of.

A. Yes, sir; many chemicals in general—all the oxidizing
129 agents—such as sulphurous acid and permanganate of potash; sulphuric acid, muriatic acid, and permanganate of potash, another—of course, these must be mixed or used in proper proportion; still another, peroxide of hydrogen, alone or mixed up with ammonia; and another, which has been used for many years in the laboratories and very powerful, is the reaction which takes place when you put some chlorate of potash in some muriatic acid. The gases which are generated in that reaction have a very great oxidizing power in the nascent state; in that reaction the different gases are the only active agents. There is all the chlorides—chloride of sodium, chloride of potassium, etc., properly treated by acids. The chlorine gas damp, or the pure solution of chlorine in water, or a mixture of peroxide of hydrogen solution in a chlorine gas solution is a very powerful oxidizing agent. There may be others.

8 Q. Are all these agencies employed in the art of bleaching and refining hair?

A. Some of them are and some others are not, but all of them can be used for that purpose.

9 Q. When you say some of them are not used for that purpose do you mean to say simply that they have not been used, so far as you know?

(Obj. to as leading.)

A. Yes, sir.

10 Q. Which of these agencies, so far as your observation goes, have been used for that purpose?

A. The sulphurous acid and permanganate of potash; also chlorate of potash and muriatic acid, the chloride of lime alone, the chlorine gas solution alone, the mixture of peroxide of hydrogen and chlorine gas solution alone, or the same solution, to which is added a proper quantity of ammonia or soda.

11 Q. How long have you been aware of the employment of these agencies for the purposes mentioned?

130 (Obj. to as immaterial and improper and as not pertaining to the issues, which are as to the infringement alone.)

A. Many years, especially the reaction which takes place when you use the chlorate of potash with muriatic acid. It is known by me since I was 15 or 16 years old.

12 Q. Have you made use of all these agencies in the bleaching and refining of human hair?

A. Yes.

13 Q. Look at these samples of hair (several bundles of hair shown to witness) and say what they are.

A. They are human hair which have been submitted to the action of an oxidizing agent, and maybe to several oxidizing agents.

14 Q. Were they submitted to any oxidizing agent by you? And, if so, state what, relative to such bunch of hair.

A. Yes, sir; this one marked Defendant's Ex. No. 1 Marchand,

Ap. 23, '84, J. H. H., N. P. and Spec'l Ex'r, for identification, was treated by a chlorine gas solution in pure water; washed or cleaned out the raw hair at first by the ordinary way with soap and carbonate of soda. I rinsed it out to remove all the soap; then I put the hair in the chlorine gas solution, where it remained until I found the hair was properly or sufficiently refined, according to the fineness of the hair. I can let it remain in the chlorine gas solution for one hour, two hours, and three hours, if it's necessary. Then I took the hair out from the chlorine gas solution, I passed it through some water, lukewarm, to which I added previously the proper proportion of ammonia. After this operation was through the hair was perfectly clean; then I treated it by a solution of peroxide of hydrogen and ammonia. After it came out of the peroxide of hydrogen it was dyed in the ordinary way to procure the desired shade.

131 15 Q. What kind of human hair was this before you treated it?

A. It was raw Chinese hair.

16 Q. Take Def't's Exhibit No. 2 Marchand, Apr. 23, '84, J. H. H., N. P. and Spec. Ex'r, for identification, and explain the manner of its treatment.

A. The hair was thoroughly washed first as before. Then a concentrated solution of permanganate of potash in water was made and treated with sulphuric acid and muriatic acid in proper proportions to produce an oxidizing reaction. Then I dip the hair in that liquid and I let it remain in it until the reaction gets through its action on the hair. The time which is required varies with the fineness of the hair required. Then, when the hair is of the right degree, I take it out. I rinsed it in a weak solution of muriatic acid and water to remove the kind of sediment which is formed on the surface of the hair by that reaction. Then I wash it in a weak solution of ammonia and water—in one, two, or three solutions—until the hair becomes clean. When the hair is perfectly clean I treat it by peroxide of hydrogen and ammonia, the same as before. Then it is dyed, as usual.

17 Q. Take Def't's Exhibit No. 3 Marchand, April 23, '84, J. H. H., N. P. and Ex'r, for identification, and state how it was treated.

A. The hair was washed as before. Then I had a solution of sulphurous acid in water, and I prepared at the same time a strong solution of permanganate of potash. I dipped the hair into that solution of permanganate of potash. I took it out and dipped it into the solution of sulphurous acid the proper time, and repeated it until the fineness proper or required is produced. When I want to operate to get through the process quicker I put the two solutions together in the proper proportions. Then I put the hair in that for a little while and then I wash it out as before. Part of the

132 hair in this exhibit was treated with the solution separately and part with the two mingled. After they are properly washed then they are treated with peroxide of hydrogen and dyed as before.

Adjourned by consent to Apr. 24, 1884, at 1 p. m.

____ ____,
N. P. & Spec. Ex'r.

N. Y., *April* 24, 1884—1 p. m.

Further adjournment had, on application of counsel for defendant, to April 26, 1884, — p. m.

____ ____,
N. P. & Spec. Ex'r.

N. Y., *April* 26, 1884—2 p. m.

Taking of testimony on behalf of defendant further adjourned, owing to court engagements of examiner, to April 28, 1884, 1 p. m.

____ ____,
N. P. & Spec. Ex'r.

N. Y., *April* 28*th*, 1884—1 p. m.

Met pursuant to adjournment.

Present: Counsel as before.

Direct examination of witness MARCHAND resumed by defendant's counsel:

18 Q. Look at this bunch of hair (bunch of hair shown witness) and state whether you recognize in either of those three colors or strands any hair on which you have operated.

(Obj. to as immaterial.)

133 A. It is pretty hard to tell, but I think the strand of the darkest shade was made by me; all three are very much alike, except the shade.

(Bunch of hair in question marked Def't's Ex. 4 Marchand, for identification, Apr. 28th, '84, J. H. H., N. P. & Spec. Ex'r.)

19 Q. From an examination of the three strands of hair comprising Def't's Ex. 4 Marchand, for identification, of this date, do you see any difference except in color?

(Obj. to as immaterial.)

A. No; I don't see any difference but in the color.

20 Q. From such an examination can you tell whether the three strands have been treated in the same manner or by different processes or chemical agents?

(Same obj. as Q. 19, and also as leading.)

A. It is impossible to see by what processes the different strands have been treated, but the three of them have been certainly treated by some oxidyzing agents.

21 Q. As a chemical expert and an operator upon hair, has the same result been obtained substantially by the treatment of the three strands in Def't's Ex. 4 Marchand aforesaid?

(Same objection as to Q. 20.)

A. Yes; the same result is obtained for the three strands.

22 Q. In what institution did you graduate, Mr. Marchand?

A. Ecole des Centrale des Arts et Manufactures de Paris.

134 23 Q. In what year did you graduate?

A. 1871.

24 Q. What works on chemistry did you study?

A. Payen Industriel Chemistry, Wurtz' Dictionary, Cahours' Chemistry, Riche Chemistry, Pelouze and Fremy, and many others.

25 Q. Since 1871 have you been a practical chemist?

(Same obj. as 20 Q.)

A. Since 1871 I have been a practical chemist—before I came here. I have been a practical chemist since graduated, and an analytical chemist since I came to this country, in December, 1878, and since then a manufacturing chemist as well.

26 Q. State whether the laboratory with which you are connected is an extensive one or not.

(Same obj. as to 20 Q.)

A. At first I was a director of the laboratory of Ville Montague, at Iglesia Sardaique Island, and now have my own laboratory here.

27 Q. If the darkest strand of Defendant's Ex. of this date was treated by you as you think, explain fully its mode of treatment.

(Obj. to as immaterial, not being within the issue, and as hypothetical.)

A. If that strand was treated by me it has been treated by one of the three processes described in my previous examination, but I cannot say by which one of the three it was treated.

135 28 Q. Have you frequently sold hair to Mr. Jeantet?

(Same obj. as to 20 Q.)

A. Yes, sir.

29 Q. Such as you have sold to him was it prepared by you in one of the modes you have described?

(Obj. to as to last question.)

A. Yes, sir; they have been prepared by one of the oxydizing treatments I mentioned as using.

30 Q. Do you remember on any occasion of loaning to Mr. Jeantet a sample of hair?

(Same obj. as to Q. 28.)

A. Yes, sir; many months ago; I do not remember the time.

31 Q. Was the hair that you lent him prepared in one of the modes and treated with one of the oxidizing agents you have enumerated in your previous examination?

(Same obj. as to Q. 28.)

A. Yes, sir.

32 Q. Have you read the specifications forming part of letters patent 184,577, the last reissue of which is numbered 8637, and dated March 25th, 1879, involved in this proceeding?

(Objected to as being immaterial, specifications referred to in the question having been long ago surrendered to the Patent
136 Office with the patent, and not being the specification relied upon in this suit.)

A. Yes, sir.

33 Q. Do you speak of specification dated Feb'y 28th, 1879?

A. Yes, sir.

34 Q. Is it practically possible to treat hair in any of the modes specified in these specifications and to obtain the results claimed in the specifications for such treatment?

(Obj. to, 1st, as leading; 2d, as immaterial; 3d, as having no possible materiality in the issue in this cause, which is simply a question of whether the defendant did or did not infringe the rights of the complainants under the reissued patent No. 8637, granted to John Béné by the U. S. Patent Office on the 25th day of March, 1879.)

A. Such as it is described it is perfectly false as the chlorine salt. I suppose it means chlorides and chlorate of potash are not dissolved in muriatic acid, but they are decomposed by muriatic acid, which is an entirely different thing. The solution of the salt means that you could reconstitute that salt by crystallization or evaporation, and in that case every chemist knows that when chlorate of potash will have been submitted to the action of muriatic acid, in case he would like to reconstitute chlorate of potash he could not do it; consequently, when you throw in some chlorate of potash in muriatic acid you don't obtain a solution of chlorate of potash, but you produce a chemical reaction which is not a solution, but a decomposition of chlorate of potash, and produces hypochlorous acid,
137 nascent, chlorine gas, and I can say that the reaction is one of the most complicated reactions in chemistry; and if you should evaporate the liquid after the reaction has been completed then you would certainly not find any amount of chlorate of potash if completed.

35 Q. The specification employs the term "chlorine salt," and you say in your — you suppose it means "chlorides." Why do you suppose that chlorides and not "chlorine salt" was meant? I refer to the fifth paragraph of the specification.

(Obj. to as immaterial.)

A. I never heard such a denomination, and when we speak in chemistry about salts which contain chlorine we call them chlorides or chlorates or hypochlorates. We give a special denomination. For example, the chloride of sodium contains chlorine and sodium, and the chlorates of soda contains chlorine, oxygen, and sodium. That is or shows the difference between chlorides and chlorates.

36 Q. Does the term chloride, in chemistry, always mean a salt containing chlorine?

(Same obj. as to 35 Q.)

A. Yes, sir.

37 Q. Taking the specification in the very language in which it is expressed, would it be possible to bleach or refine hair in any of the modes pointed out?

(Same obj. as to 34 Q.)

A. In the specification it is written that the hair is dipped and manipulated in the compound from a so-called solution of
138 chlorate of potash in muriatic acid, prepared in a vat, jar, or other suitable vessel, until the desired degree of fineness is obtained. That means that the compound acts as a dissolving agent, instead of which it is the reaction which takes place when you throw into muriatic acid some chlorate of potash, which produces, not a dissolving reaction, but an oxidizing one. A dissolving agent answers to a cauterizing agent; such cauterizing agent as potash, caustic, etc. The compound itself, which is the result of the reaction, is not proper to oxidize the surface of the hair when it is exhausted. I mean by that the oxidizing action is only produced during the reaction, and when the reaction is over the compound resulting is good for nothing; otherwise, you could keep it in stock and for sale.

38 Q. When muriatic acid is mingled with chlorate of potash does it produce a species of ebullition?

(Same obj. as to 34 Q.)

A. Yes, sir.

39 Q. How long does the ebullition continue?

(Same obj. as to 34 Q.)

A. It contines until the chlorate of potash is entirely decomposed.

40 Q. In the proportion of chlorate of potash and muriatic *of* acid mentioned in the specification how many minutes would the ebullition continue?

(Same obj. as to Q. 34.)

A. In case the muriatic acid bath should be kept at a low temperature it would last ten or twelve minutes. Should the muriatic acid be brought to a higher temperature the reaction would be very prompt, and it would last a few seconds only at high tem-
139 perature; the duration depends upon the temperature.

41 Q. When ebullition is over does the compound possess any oxidizing power?

(Same obj. as to Q. 34.)

A. When all the gas has escaped there is no oxidizing power.

42 Q. Is there such a thing in chemistry as a solution of chlorine salt?

(Same obj. as to Q. 34.)

A. As I told — before, I know only as chlorine salt chlorides; I don't know the term "chlorine salt."

Adjourned for cross-examination of the witness to April 30, 1884, 1 p. m., by consent.

J. H. H.,
N. P. and Spec. Ex.

N. Y., *April* 30, 1884.

Met pursuant to adjournment.

Present: Counsel as before.

At request of defendant's counsel and with consent of complainants' counsel, further examination of the witness-in-chief — had, viz:

43 Q. Are you acquainted with the nature of nitric and sulphuric acids?

A. Yes, sir.

44 Q. I notice in complainants' specification it is stated as follows: "In addition to the muriatic acid, this bath may consist of either nitric, sulphuric, or hydrofluoric acid with bichromate of potash." What would be the effect upon the hair of treating it with nitric acid in the manner stated?

(Same obj. as Q. 34.)

140 A. The sulphuric acid when it is put in contact with bichromate of potash will set free some oxygen chromic acid, and will act on the hair as an oxidizing agent and spoil generally the texture of the hair.

(Ans. obj. to as irresponsive.)

Witness continues: The nitric acid will transform the hair partly into picric acid.

(Objection to last part of answer same as to first part.)

45. What is picric acid, and what is its nature?

A. Picric acid is a yellow solid acid, which forms with the caustic potash a compound named picrate of potash, which is very explosive, or one of the strongest explosive substances. You cannot touch it without danger of explosion.

46 Q. Do you mean that that combination of chemical agents entirely destroys the texture of the hair?

(Obj. same as Q. 34.)

A. Yes, sir.

47 Q. What would be the effect upon the hair of treating it to a bath of sulphuric acid with bichromate of potash?

(Same obj. as Q. 34.)

A. The effect is already described in my answer to Q. 44.

Counsel for complainant gives notice on the record that he shall, at the final hearing of this cause or at some other proper place, make a motion to strike out *of* the evidence of this witness given in answer to questions which have been objected to for the reason stated
141 in such objection.

And the witness, being cross-examined by counsel for complainants, testifies as follows:

48 X Q. Mr. Marchand, where is your present place of business?
A. My place of business is corner of Horatio and West streets, N. Y. city.
49 X Q. How long have you been engaged in business there?
A. Since my factory was built, eleven months ago.
50 X Q. Where last before that time?
A. Corner of Banks St. and 13th avenue, N. Y. city, about five months, and before that I was — 635 Broadway about two years, and before that I was at 240 Broadway for a little more than a year, and before then in France.
51 X Q. You say you are a manufacturing chemist. What chemicals do you manufacture?
A. I manufacture caustic baryta, hydrated baryta, binoxide of baritum, hydrofluoric acid, peroxide of hydrogen, bacterine—a disinfectant.
52 X Q. How long have you been engaged in such manufacture?
A. Since the last part of November or December, 1879; I don't remember exactly.
53 X Q. Are you engaged in any other business?
A. Yes, sir.
54 X Q. Please state what it is.
A. In the bleaching business—of silk, hair, feathers—any kind of bleaching.
55 X Q. Any other business?
A. There is no other business. I have no other business than I have mentioned.
56 X Q. Are you not engaged in refining or reducing Chinese or other coarse hair to fine hair?
A. When I say bleaching I mean refining hair as well as
142 feathers, as well silk, as any bleaching process is positively, without any doubt, equivalent of any refining process for hair, and the material proof which I can give to enforce my opinion is that any one of the organic substances mentioned above, as well as others, lose in their weight from one to forty, some times forty-five, per cent., and maybe more, I am not sure, after they have been properly treated by any bleaching process; consequently the hair, or the feathers, or the silk are refined, since there is a loss in their weight. The woolen, cotton, the ramic, jute, and any textile material are refined and bleached by similar process, the loss of weight being a positive proof of what I say.
57 X Q. Is *the* only the refining or reducing the size of hair which is done in your establishment that which is incidental to the process of bleaching?

A. The process which I use at first is one of the processes mentioned in my examination-in-chief, and I complete the reduction of the hair by means of peroxide of hydrogen. The reduction obtained by the treatment of the peroxide of hydrogen can reach the 15 per cent. in loss of weight very easy, and I suppose that is a pretty large reduction.

58 X Q. Question repeated.

A. Yes.

59 X Q. Do you mean to be understood that the reduction of coarse hair, say Chinese hair, to the amount of fifteen per cent. is sufficient to prepare such hair for the uses to which such refined Chinese hair is usually applied?

A. First, I say yes, for some purposes, it is. For example, when the Chinese hair is intended to be used for the purpose of manufacturing hair-nets then I don't need to reduce it generally more than 8 or ten per cent. in loss of weight, because it requires to deliver to the trade with its full natural strength.

Second. When the hair must be delivered to the trade for the purpose of making switches or mixing up with first or second
143 quality hair, it must be treated by one or the other of the processes explained in my examination-in-chief.

60 X Q. In the case last mentioned by you why is it necessary to use a different process than the one you used in preparing the hair for nets?

A. Because the hair used for making switches don't require to be as strong as it is when they are used for nets; consequently it can be treated by a more violent oxydizing agent in one case than the other.

61 X Q. In preparing hair for nets it is bleached of various or to various shades to correspond to the color of the hair on which the nets are used, is it not?

A. No.

62 X Q. It is first bleached and then colored to the desired shade to match the hair?

A. Yes.

63 X Q. Do you manufacture and sell what you call fine or refined hair?

A. Yes, sir.

64 X Q. How do you designate it on your bills of sale?

A. As fine or refined or manufactured Chinese hair.

65 X Q. Is not your usual method of designating it fine Chinese hair?

A. Yes; I usually call it that.

66 X Q. If the process of refining is simply incidental to bleaching why do you not call it bleached Chinese hair?

A. Because I never made any difference in my mind, so far as a bleaching process is a reducing process.

67 X Q. Do you mean to be understood as saying in answer to X Q. 57 that you reduce the size of hair by the peroxyde of hydrogen?

A. Oh, yes; certainly.

68 X Q. In such reduction are the outer scales, or what are sometimes called beards, removed by the action of peroxyde of hydrogen?

A. Certainly they are, sure.

144 69 X Q. Do you know Mr. Jeantet, the defendant?

A. Yes; some five years.

70 X Q. Do you know Mr. Béné, one of the complainants?

A. Yes; about three years.

71 X Q. You say in your answer to Q. 5 that you can distinguish bleached or refined human hair from such hair in its normal condition; how can you distinguish bleach- hair from unbleached hair?

A. Any kind of raw hair is pretty uneven, and when it has been treated in proper way by an oxidizing agent of any kind the roughness of the surface of the hair has been oxidized and consequently partly decompose-, and when you wash out the hair you remove the part of the hair which has been oxidized.

72 X Q. What portion of the hair is it that is so removed in bleaching?

A. The surface consists of uneven parts, which can be compared, not by me, but by others, to beards.

73 X Q. Please give us your description of these roughnesses, as you call them.

A. When you take the hair from the root to — other end you feel in the fingers, especially if you give a rotary movement, the unevenness of the hair, and in the other direction your feeling is better— I mean in going towards the root it is more distinct.

74 X Q. My last question intended to call for a particular description of the special formation of the surface which causes this feeling of roughness.

A. I would have to look through a microscope to give answer.

75 X Q. Have you never made a careful examination of the surface of hair with a microscope?

A. I never examined hair through a microscope except human hair and animal, other than Chinese hair.

76 X Q. From such examination as you have made can you describe the particular appearance of the roughness or projec-

145 tions on the surface and state of what elements they are composed or what is the general nature of their structure?

A. Yes; as to the hair I have examined its general appearance is a capillary tube formed of cells united together, and the outside surface or cuticle is not even, and such unevenness is irregular in its whole length.

Adjourned by consent to May 1st, 1884, 2 p. m.

J. H. H.,
N. P. and Spec. Ex'r.

NEW YORK, *May 1st*, 1884.

Met pursuant to adjournment.

Present: Counsel as before.

Cross-examination of witness MARCHAND resumed:

77 X Q. You say, in answer to X Q. 67, that hair can be reduced in size by the use of peroxide of hydrogen. Do you mean by peroxide of hydrogen alone or in connection with other agents?

A. Peroxide of hydrogen used for that purpose is never chemically pure—free of other substances; sometimes it is acid; sometimes it is neuter. When it is acid the oxydizing power is not so rapid as it is when it is neuter.

78 X Q. What do you mean by being neuter?

A. I mean by being neuter that it is not acid, and turns blue a red litmus paper, when it is dipped in the neuter peroxide, and on the contrary, when the peroxide is acid the blue litmus paper is turned red when you dip it in it.

79 X Q. Will you state the chemical ingredients or chemical agents forming peroxide of hydrogen?

A. Binoxide of barium, treated by sulphuric acid; muriatic
146 acid, separately or together, it makes no difference; oxalic phosphoric acid; hydrofluoric, and nearly all the acids; that is the only way to make that which we call the peroxide of hydrogen.

80 X Q. Will you give the chemical formula in figures and letters for peroxide of hydrogen?

A. $H_2 O_2$.

81 X Q. This symbol, I suppose, represent- pure peroxide of hydrogen, does it not?

A. Yes, sir; that formula represents the peroxide of hydrogen in its real state, not in solution, and in that state the peroxide of hydrogen is like syrup or glycerine diluted with water, about ½ each, and when the peroxide of hydrogen is in that state it is the most powerful pure oxidizing agent which I know; and to give you an idea of the oxidizing action of peroxide of hydrogen diluted in water (I mean $H_2 O_2$) to fifteen per cent. in weight to 85 per cent. in weight of water, which corresponds for the trade to about fifty volumes of oxygen for one volume of solution—I mean that one volume so made contain- fifty volumes of gas—with such a solution I will reduce the hair—any kind of hair, Chinese, horse hair, European, or any kind—in a very large proportion without injury at all. For example, I have treated some hair which gave me in one bath or operation only a loss of about fifteen per cent. in weight; and there is no doubt that by using a more concentrated solution you could reduce the weight and consequenly the thickness of the hair in a greater proportion, but it does not act at all as a dissolving agent, but simply as an oxidizing one.

(All after yes, sir, objected to as irresponsive.)

82 X Q. Is the peroxide of hydrogen, which you have described

in answer to X Q. 79, such as you manufacture for the trade?

147 A. In my previous answer, X Q. 79, I mention the chemicals which I used for the purpose of manufacturing peroxide of hydrogen, and I must add to that answer that the reaction takes place in the presence of water; it is the kind I manufacture for the trade so prepared, and it varies in strength from one to seventy-five volumes.

83 X Q. Can you distinguish refined from unrefined hair readily?

A. Yes.

84 X Q. On a cursory examination?

A. Yes; by looking at it and examining it with my fingers.

85 X Q. You state in answer to Q. 6 that you had examined the hair in complainants' exhibits on file. What kind of examination did you make?

A. I looked at it and I felt the hair with my fingers, and I found it had been submitted to an oxidizing agent and dyed, but I could not state which one of the oxidizing agents had been used.

86 X Q. Are the only means you exercise, then, in forming that opinion the senses of sight and touch?

A. Yes; the appearance of the hair mentioned is more glossy and smoother than it was in the raw state.

87 X Q. By the term oxidizing do you refer to a chemical power or reaction?

A. I understand that an oxidizing agent generates or produces a chemical reaction on the hair or organic matters.

88 X Q. Will you describe in general terms the chemical reaction which you call oxidizing?

A. I mean by that expression that the hair, or any other organic substances, is decomposed by the oxygen, and the hydrogen of the hair is combined with the active oxygen, and the carbon compounds of the hair are oxidized too, probably; I say probably

148 because the nature of this very complicated reaction is not perfectly known by chemists. It is one of the most complicated reactions, because the products of this reaction change their nature so soon as they are produced.

89 X Q. By referring to Webster's Dictionary I find the word "oxidize;" also the word "oxidate." We find as follows: "To convert into an oxide, as metals and other substances, by combination with oxygen." Do you mean to say that in these reactions the hair has been turned into an oxide by a combination with the oxygen?

A. My answer don't mean that at all.

90 X Q. What, then, does it mean?

A. I mean that the hydrogen, for example, is oxidized and transformed in water by this oxidizing action. It is exactly what the Dictionary says, only it speaks simply — metals.

91 X Q. Do you mean, then, that the hydrogen is oxidized?

A. No; I mean that the hydrogen is combined with the oxygen and forms water.

92 X Q. And is the water so formed the oxide into which the hair is converted?

A. The hair is not converted into an oxide. Of course I mean

the constituents of the hair, which are perfectly different from the hair itself. The components of the hair, some of them, are oxidized, but not the hair itself; otherwise it would be all destroyed and transformed into something else.

93 X Q. But the hair is the thing you submit to the action of the solution, and not its separate *compound* parts. How can the oxidizing agent *the* act upon the component parts without acting upon the hair?

A. As I told before, the oxidizing agent acts on each of the components of the hair individually; that constitute- the oxidizing action.

149 94 X Q. Do you mean to be understood, in answer to Q. 27, that sulphurous acid and perman-ate of potash, without the use of other ingredients, will reduce the size of hair?

A. Certainly; the sulphurous acid alone in solution would do — it does with silk, feathers, or other organic substances.

95 X Q. What is the chemical symbol of sulphurous acid?

A. $S_{I,2}$.

96 X Q. What of sulphuric acid?

A. Anhydrous, S_I, O_3., and the hydrated as S_I, O_4, H_1, or S_I, O_3, H_I, O_1.

97 X Q. What are the component parts of permanganate of potash?

A. Permanganate of potash is composed of permanganic acid and the potash formula of Mn_2, O_7, K, O.

98 X Q. Will you describe the chemical reaction which results in the oxidization when hair is submitted to the joint action of sulphurous acid and permanganate of potash in solution?

A. When sulphurous acid and permanganate of potash are put in contact with each other the permanganic acid is set free, and that permanganic acid is one of the most powerful oxidizing agents. In the oxidizing action the permanganic acid leaves off one part of the oxygen and acts very quick, because it is in its nascent state.

99 X Q. Then you mean to be understood that the permanganic acid, in its nascent condition in this solution, is the active principal which reduces the size of the hair, do you?

A. Yes, sir.

100 X Q. Do you mean also to be understood that peroxide of hydrogen mixed with ammonia in solution without other active agents will reduce the size of hair?

A. Yes, sir.

150 101 X Q. What is the chemical reaction in such a mixture which causes the reaction of hair?

A. The reaction is the same, except that it is more hasty in ammonia.

102 X Q. Do you mean also to be understood that the pure solution of chlorine in water will reduce the size of hair?

A. It will do exactly the same; yes, sir; it will do exactly the same if you use the pure chlorine gas or if you add to it alkali.

103 X Q. By pure solution of chlorine in water do you mean what is known — "chlorine water?"

A. No. It is manufactured for such purpose, but is not manufactured for the trade. I don't know what chlorine water is that you say the chlorine solutions sold as such and chlorine of lime or hypochlorite of soda.

104 X Q. Will you state the constitution of such chlorine water as that you refer to?

A. The chlorine is manufactured by the action of muriatic acid on peroxide of manganese properly treated, or by the action of sulphuric acid on chloride of sodium and peroxide of manganese put up in proper proportions.

105 X Q. How is it incorporated with the water?

A. Then the reaction which takes place in the process sets free the chlorine gas, which is washed out through a washer bottle, and it is carried out through some pipes into plain water, which dissolves it at the ordinary temperature. If left for any length of time it will be slowly transformed into muriatic acid, especially when exposed to the light.

106 X Q. You have used the term chlorine gas solution. Is that the same solution spoken of in your last answer?

A. Yes, sir.

151 Adjourned by consent to May 3d, 1884, 1 p. m.

J. H. H.,
N. P. & Spec. Ex'r.

N. Y., *May* 3*d*, 1883.

Met pursuant to adjournment.

Present: Counsel as before.

Cross-examination of witness resumed:

107 X Q. Do you mean to be understood, in answer to Q. 10, that hair can be reduced in size so as to make fine hair out of coarse hair, as a practical business operation, by the use of chloride of lime alone?

A. Yes, sir; by concentrated solution of chloride of lime.

108 X Q. Then, you mean by use of chloride of lime dissolved in water, do you not?

A. Of course.

109 X Q. In what proportions must the chloride and water be mixed?

A. I would saturate the water with chloride of lime.

110 X Q. In what way would you submit the hair to the action of such solution?

A. I would let it stay in that solution until the chloride of lime would be entirely exhausted, or I would dip it into that solution and I would dip it into another solution of muriatic acid and water—first one and then the other—in order to make the reaction take place quicker.

111 X Q. But my question referred to the use of chloride of lime alone. If you use a muriatic acid solution alternately, it would not be refining the hair with chloride of lime alone, would it?

A. I did answer to the question, and I say that the chloride of lime alone is an oxidizing agent.

152 112 X Q. In the work published by Lippencott & Co., in Philadelphia, Pa., in 1877, entitled "Chemistry, Theoretical, Practical, and Analytical, as applied to the arts and manufactures, by writers of eminence," in the 2d volume, at page 279, thirty-second line from top, I find the following: "Lead dissolved in dilute nitric acid." Now will you tell us whether the solution so formed would be evaporated and the lead thereby reproduced?

A. The lead is not decomposed by nitric acid. It is not dissolved properly in nitric acid, but it is combined with nitric acid to produce some nitrate of lead, which is a salt; and in case you would like to get back the lead it would be a very easy thing to do it by decomposing the nitrate of lead with heat; then you would get back pure lead. If you treat the chlorate of potash by muriatic acid, for example, you could spend all your knowledge and time without any result before you could succeed to get back the chlorate of potash.

113 X Q. Do you mean to be understood or say that the lead, while held in solution by the nitric acid, forms with the nitric acid a salt?

A. Certainly the lead is. It is transformed into salt, which is represented by the formula AZO_5, PBO.

114 X Q. It is then a liquid salt, is it?

A. No; there is no liquid salt.

115 X Q. But I am asking you about the lead while held in solution by the nitric acid while it is in liquid form.

A. When lead is put in nitric acid it combines with the nitric acid to form the nitrate of lead, which is dissolved in the water, which contain- commercial nitric acid.

116 X Q. Then, I understand you to say that the expression "lead dissolves in dilute nitric acid" is incorrect, as the lead, as you say, does not properly dissolve?

153 A. Yes, sir; the expression is incorrect and improper, as it would mean that the result should be a solution of lead in nitric acid, and there is no solution of that kind existing; the lead is combined with nitric acid, and it don't give anything else but salt. If it should be dissolved you could get back by simple evaporation, and you would get back the lead, which you cannot do.

117 X Q. At line 37, on the same page of the work referred to in X Q. 112, I read as follows: "Pure lead leaves no insoluble residue in nitric acid." Does not that mean that pure lead is entirely soluble in nitric acid?

(Obj. by def't's counsel as irrelevant and incompetent.)

A. That means that pure lead is entirely transformed into nitrate of lead; that don't mean anything else. If you should say that nitrate of lead is soluble in water I would answer yes, because a solution of nitrate of lead, being evaporated, will give you the nitrate of lead salt dry, but it will never give you the lead.

118 X Q. Does it not mean that the lead is dissolved and held in solution?

A. No, sir; that means, as I said before, that the lead is no more in the state of lead, but in the state of nitrate of lead.

119 X Q. Then why do they use the term "soluble" in speaking of lead?

(Same obj. as to X Q. 117.)

A. I will establish in answering that the difference between a solution and a new chemical compound is the following: If
154 you dissolve a piece of salt or sugar in water, you don't change at all the nature of the sugar, and you can regenerate it at any moment in its first state, instead of when you submit a metal like lead to the action of an acid like nitric acid you transform the metal into a salt which is perfectly a different thing to every chemist in the world.

120 X Q. Same as X Q. 119.

A. I say that the lead is a combination, not a solution. I don't know why they use the term solution.

121 X Q. In the same work, above referred to, 2d vol., page 71, in the article on gold, 33 line from top, I find the foilowing: "Before any of these tests can be applied the substance supposed to contain the gold must be brought into a state of solution." What does this mean?

(Same obj. as to X Q. 117.)

A. That means that the impurities that are mixed up in the ore or alloy must be brought to the state of soluble salt. For example, there is some copper, some silver, some iron, and some gold or something else, yet all the metals which can be attacked by an acid will be transformed into soluble salts, and the gold that is not attacked will remain free.

122 X Q. At the 40th line, same work, volume, and page, I read: "If the matter under examination be simply a metalic alloy it can be dissolved without any previous preparation." What does that mean as to —?

(Same obj. as to X Q. 111.)

A. That means that, in order to facilitate the reaction which transforms the attackable metals by the acid into salts, it is necessary to increase the surface by grinding or pulverizing the solid piece, which would be very difficult to attack with the acid; that is all that it means.

155 123 X Q. I read in the same connection, same work, volume, and page: "When the solution is effected." What does that mean—solution of what?

(Same obj. as to 117 X Q.)

A. That means when the attack is completed (I maintain it is not a solution), which means when the metal is transformed into its corresponding salt.

124 X Q. Then these sentences, to which I have referred in using

the terms "dissolve," "solution," and "soluble," do not express what is meant by the author; is that what you mean?

(Obj. to as to 117 X Q.)

A. Don't know what your author means by using these terms, as the proper term would be that lead is attacked by nitric acid and transformed into nitrate of lead.

125 X Q. Do you mean to be understood that the words "dissolve," "solution," and "soluble" do not express their ordinary meaning in the articles referred to?

A. Yes; I mean that the terms are improperly used.

126 X Q. In a work known as "Ganot's Elementary Treatise on Physics," a French work, republished by William Wood & Co., at N. Y., in 1881, in article 342, page 287, I read as follows: "A body is said to dissolve when it becomes liquid in consequence of an affinity between its molecules and those of a liquid." Is that a scientific definition or description of the dissolving of a substance?

(Same obj. as to X Q. 117.)

A. Yes, sir; but it is not a complete definition.

156 127 X Q. In the same article, page, and work, describing two kinds of solutions, I read: "The second is a chemical combination of the body dissolved with the liquid." If, as you say, there is no such thing as dissolving a body except when evaporation will restore the original body, will you explain what is meant by this statement?

(Same obj. as to 117 X Q.)

A. I have already explained the difference *wherein* the solution of a body and the combination of a body, which are two different things. It is a mixture of the body with the liquid, not a combination, and it is so true that when you evaporate the solution you reconstitute the body instead of in case of a chemical combination you would never reconstitute the body to its primitive state.

Adjourned by consent to May 6th, 1884, 1 p. m.

J. H. H.,
N. P. and Spec. Ex'r.

N. Y., *May* 10, 1884.

Met pursuant to adjournment.
Present: Counsel as before.

Cross-examination of witness MARCHAND resumed:

128 X Q. When did you first see hair reduced in diameter by the use of chemicals?

A. At least twelve years ago. It was made by Tessie Du Motay, a chemist.

129 X Q. Where?

A. In Paris.

130 X Q. When did you first refine or reduce the diameter of hair by the use of chemicals?

157 A. When I started in business in this country.

131 X Q. Where?

A. In New York; 240 Broadway.

132 X Q. When was that?

A. It was in 1880, about January.

133 X Q. Where did you obtain your knowledge of the effect of the reaction of chemicals on hair?

A. In Paris.

134 X Q. From books or from oral instruction?

A. Orally, from chemists.

135 X Q. Can you refer to any work on chemistry or other scientific subjects which gives a description of the effect of oxidizing agents on hair especially?

A. Yes; the hair being an organic substance.

136 X Q. What do you mean by an organic substance?

A. I mean it is not a mineral substance.

137 X Q. My question, 135, asked for works giving a description of the effect on hair especially, and not on organic substances generally. Please answer the question in view of this explanation.

A. Yes; I can refer to scientific works which treat of the oxidization of organic substances generally, but none which refer to hair especially.

138 X Q. To what works do you refer as treating of the subjects generally?

A. Precis de Chimie Industrielle, by A. Payen, membre de l'Institut, tome premier, 6th edition, page 545, commencing seven lines from the bottom with the word "soit;" also pages 566 and 557 (all of article 5); also pages 563 and 564 (all of article 8); also Dictionnaire de Chimie pure et applique, etc., par A. D. Wurtz, membre de l'Institut, tome 1st, article, Chlorine, generated by the use of chlorat- of potash and muriatic acid, for the purpose of producing an oxidizing reaction. Besides, I can refer from memory to the same

158 dictionary and to the same book published by Mr. Payen, that the hypochlorous acid solution, the chlorous acid solution, which will be found in the articles concerning the chlorine, are oxidizing agents. Now, in the Wurtz Dictionary, in the article Sulphur, you will find that the sulphurous acid is an oxidizing agent, as well as the sulphites. Now, you will find in the same dictionary that the permanganate acid is another oxidizing agent. Now, you will find in the same dictionary that the permanganate of potash, being properly treated by sulphurous acid, to which you add muriatic acid, drop by drop, will produce a mixture of permanganic acid and hypochlorous acid, of which the mutual action on organic substances will be one of the most powerful oxidizing reactions; also, the article Chrome; you will find that the chromic acid is another oxidizing agent, and there are many others.

All of the above answer, except the titles and pages of the work referred to, objected to as irresponsive.

139 X Q. Referring to "Def.'s Exhibit No. 1 Marchand," for iden-

tification, and to answer 14, please describe particularly the chlorine gas solution used by you on that occasion.

A. It was concentrated chlorine gas solution, to which I added proper proportion of carbonate of soda and a small quantity of ammonia; then I put in the hair, washed it first, and then I let it stay in until the solution was exhausted; that may last about one hour, according to the temperature; then the surface of the hair was oxidized. I took it out and I put it again in a new solution of chlorine, prepared in the same way, but not so strong, in order to complete the sufficient oxydization of the hair. This first done I wash it in order to remove the oxidized part of the surface of the hair.

159 140 X Q. What proportion of water did you use to make this solution?

A. The solution was saturated.

141 X Q. What proportion of carbonate of soda?

A. A few crystals; I did not weigh it—just enough to make it act quicker.

142 X Q. How much ammonia?

A. About 1 ounce for 2 gallons.

143 X Q. Were no other substances than those you have named added to the solution before the hair, Exhibit Marchand 1, was submitted to its action?

A. No, sir.

144 X Q. When was the first time you saw hair treated in this manner—that is, by the use of such a solution?

A. Ten or twelve years ago.

145 X Q. Where has the hair, Exhibit No. 1 Marchand, been since you so treated it?

A. I delivered it to Mr. Melvin a day or two after it was treated, and left it with him.

146 X Q. How came you treat that batch of hair and deliver it to Mr. Melvin—at whose request?

A. At the request of Mr. Melvin.

147 X Q. Who furnished the hair to be treated?

A. I furnished it myself from hair I had on hand.

148 X Q. Was you paid for doing it?

A. No, sir.

149 X Q. To whom, if to anybody, have you charged these services?

A. No; I did not charge anybody.

150 X Q. Did you do it gratuitously?

A. Yes.

151 X Q. Was it raw Chinese hair when you submitted it to the solution?

A. Yes.

152 X Q. Has it been submitted to any other treatment except as you have stated before?

160 A. No; I did not.

153 X Q. How much was there of this batch of hair?

A. Simply what's in Exhibit Marchand 1.

154 X Q. Have you ever treated any hair with the same kind of solution since?

A. Yes, sir.

155 X Q. How much?

A. In large quantities.

It is consented that the time for taking further testimony by the defendant is continued 10 days after the completion of cross-examination of def.'s witness Marchand, the compl't then to have as much time as he wants to put in rebutting proof.

Adjourned by consent to May 13, at 10 o'clock.

J. HOMER HILDRETH,
N. P. and Spec. Ex'r.

N. Y., *May* 13, 1884.

Met pursuant to adjournment.

Present: Counsel as before.

Cross-examination of witness MARCHAND resumed:

156 X Q. In your 16th answer what do you mean by concentrated solution?

A. Saturated solution at the ordinary temperature of the water.

157 X Q. Please give the proportions of permanganate of potash water, sulphuric acid, and muriatic acid which you used in the mixture in which you say you treated the hair, Def't's Exhibit 2 Marchand.

A. About two ounces of crystals of permanganate of potash; I dissolved it in the proper portion of water to make a saturated solution; then I put in about not quite one ounce of sulphuric
161 acid, and I stir that mixture during a few minutes, and I heat it to about 55 to 60 degrees F., lukewarm; then, when it reached the proper temperature, I added to it slowly, drop by drop, some muriatic acid, about 1 quarter of an ounce, to start the reaction; then, as soon as I noticed the reaction was taking place, I put the hair in and left it about one hour or so; then I took it out. I rinsed it in plain water, and, in order to remove the oxide of manganese adhering to the surface of the hair, I wash the hair in a weak solution of pure muriatic acid in water; then I rinsed it again with pure water, and after with water containing a small amount of ammonia solution, and after with soap and soda, as I said before, and then it had lost about 40 per cent. in weight.

158 X Q. When you took out the hair had the reaction of the mixture ceased?

A. No; not entirely, because the permanganic acid, which is formed during that reaction and which acts as oxidizing agent, was not exhausted.

159 X Q. What was the appearance of the liquid during the reaction?

A. The liquid was dark-violet color, no ebullition; it is easy to recognize when the reaction has ceased, because the liquid changes the color; it turns a kind of dark-brown color.

160 X Q. What odor, if any, was emitted during the operation?

A. It smells of hypochlorous acid.

161 X Q. What would have been the effect on the hair if you had left it longer in the mixture?

A. It would have been reduced in a greater proportion in weight—50 per cent.

162 X Q. You speak of a sediment adhering to the hair. How can a sediment adhere to the surface of the hair while the surface is being oxydized away?

162 A. The sediment which is fixed on the hair is precisely the result of the oxydizing action of the chemical reaction, and when the hair is washed the oxydized surface of the hair is removed by the washing.

163 X Q. How—that is, by what action or reaction does the muriatic acid and water remove the sediment?

A. By forming with the oxide of manganese a salt of manganese which is soluable in water.

164 X Q. Is the muriatic acid of commerce a solution?

A. Yes.

165 X Q. Will you describe the solution of sulphurous acid in water named in your 17th answer?

A. I get the strongest I can procure in the trade; when it is weak I use more than when it is strong. The solution of permanganate of potash I use saturated.

166 X Q. What reaction and what effect did you get by the first dipping in the solution of permanganate of potash?

A. When I dip the hair in the solution of permanganate of potash the surface of the hair is impregnated with permanganate of potash solution, and when I put it in sulphurous acid solution it liberates at the surface of the hair some permanganic acid which is the oxidizing agent in that case.

167 X Q. How long did you let it remain in each solution at each time?

A. About 5 minutes.

168 X Q. How many times did you alternate the action?

A. Perhaps 9 or 10 times.

169 X Q. When you use the two solutions together do you combine these two solutions as you have described them in equal quantities or do you change the proportions in making the single solution?

A. Not in equal quantities, but in the proportion of the chemical equivalents.

163 170 X Q. In this case how much sulphurous acid solution and how much permanganate potash solution would you combine to make an oxidizing bath for the hair?

A. 2 ounces of permanganate of potash for about one or two ounces of sulphurous acid, according to the strength of the sulphurous acid solution.

171 X Q. When you commenced refining hair in New York as a business who did you employ to superintend or do the work?

A. I commenced refining hair as a business in N. Y. about June or July, 1883, and employed Mr. Perrine, who had been engaged in that business since 1871 or 1872.

172 X Q. For whom did he work last previous to engagement with you?

A. He did work last for himself and before for Mr. Béné; before Béné, for Mr. Bedu, and before for Bedu, for Mr. Esnault, and was also in business for himself.

173 X Q. After working for Mr. Béné, the complainant in this action, how long did he work for himself before engaging with you?

A. That I cannot say.

174 X Q. Where did he work for himself after leaving Béné and before working for you?

A. In France; when he came back he worked for me.

175 X Q. Did you know Mr. Perrins while he worked for the complainant, Mr. Béné?

A. Yes.

176 X Q. How long had you known him?

A. I don't remember how long.

177 X Q. Did you know him in Paris before he worked for Mr. Béné?

A. No, sir; I did not.

178 X Q. Then do you know that he worked in Paris before he worked for Mr. Béné?

A. Because he told me he worked in Paris; I did not know it otherwise.

164 179 X Q. Have you now or have you had in your employment, engaged in refining hair, any other parties who had previously worked for Mr. Béné?

A. I have now my superintendent, Mr. Benjamin Verhlin, who told me that he did work before for Mr. Béné.

180 X Q. Will you look at the paper I now show you and state if it is written on one of your business letter-heads, and if it was sent from your office?

A. Certainly, and signed by me.

Marked for identification Compl'ts' Ex. 1 Marchand, May 13, 1884, J. H. H., Spec. Ex'r.

181 X Q. Will you look at the paper now shown you and state whether it also came from your office and was signed by you?

A. Yes; certainly.

Marked for identification Compl'ts' Ex. 2 Marchand, May 13, 1884, J. H. H., Spec. Ex'r.

182 X Q. Will you look at the paper now shown you and state whether it also came from your office and was signed by you?

A. Yes; certainly.

Marked for identification Compl'ts' Ex. 3 Marchand, May 13, 1884, J. H. H., Spec. Ex'r.

Adjourned by consent to May 19, 1884, at 1 o'clock.
J. HOMER HILDRETH,
N. P. and Spec. Ex'r.

165 N. Y., *May* 19, 1884.

Adjourned by consent to May 20, 1884, 1 p. m.
J. HOMER HILDRETH,
Spec. Ex'r.

N. Y., *May* 20, 1884.

Adjourned by consent to May 24, 1884, 1 p. m.
J. HOMER HILDRETH,
Spec. Ex'r.

N. Y., *May* 24, 1884.

Met pursuant to adjournment.

Present: Counsel as before.

CHARLES MARCHAND, recalled by defendant, and, in answer to further interrogatories propounded by said defendant's counsel, testifies as follows:

183 R. D. Q. Have you examined under a microscope, during your examination here as a witness, the plaintiffs' exhibit of the hair in question, marked Krause and filed with the clerk of this court?

(Obj. to as immaterial and not in redirect examination of any part of witness' testimony on cross-examination, and therefore inadmissible.)

A. Yes, sir.

166 184 R. D. Q. When did you make such an examination?

(Same obj. as to R. D. Q. 183.)

A. Tuesday last.

185 R. D. Q. Will you describe its appearance under the glass?

(Same obj. as to R. D. Q. 183.)

A. The hair being seen through the microscope has the appearance of a tube with rugosities at the outside, which makes it very irregular.

186 R. D. Q. Do the knobs or rugosities which appeared under the hair appear uniform in size and shape and at even distances from one another along the longitude of the hair?

(Same obj. as to R. D. Q. 183.)

A. The knobs or rugosities are very irregular in form and shape, and the distance is also very irregular. As the hair seems to be perfectly smooth—I mean perfectly uniform—between these knobs, I think the best would be to give the sketch of the hair. I will do so now.

The same is submitted and marked Def't's Exhibit Marchand Drawing, May 24, '84, J. H. H., N. P. and Spec. Ex'r.

187 R. D. Q. Did the magnifying power of the glass present the hair of the same diameter, about, as you have represented it on the exhibit of this date?

(Same obj. as to R. D. Q. 183.)

A. Yes, sir; about.

188 R. D. Q. Have you examined under the glass the three
167 bunches of hair marked "Defendant's Exhibit 4 Marchand," for identification, April 28th, 1884?

(Same obj. as R. D. Q. 183.)

A. Yes, sir.

189 R. D. Q. Will you describe the appearance under the glass?

(Same obj. as R. D. Q. 183.)

A. The appearance is very similar to the hair which I examined in the clerk's office.

190 R. D. Q. Were the two examinations made under the same magnifying power?

(Same obj. as R. D. Q. 183.)

A. Yes, sir.

191 R. D. Q. Have you also examined under the microscope the hair I now exhibit to you, marked for identification Def't's Exhibit No. 1, Apr. 23, '84, and Def't's Exhibit No. 2, Apr. 23, 1884, and Def't's Exhibit No. 3, Apr. 23, '84, Marchand?

(Same obj. as R. D. Q. 183.)

A. Yes, sir.

192 R. D. Q. Was the examination made under the same magnifying conditions as the other two you have referred to?

(Same obj. as to R. D. Q. 183.)

A. Yes.

183 R. D. Q. Describe the general appearance of Exhibits 1, 2, and 3 under the glass.

(Same obj. as to R. D. Q. 183.)

168 A. There is no appreciable difference between the appearance, rugosities, or knobs of the hair.

194 R. D. Q. Will you examine the bunch of hair I now show you and marked Def't's Exhibit No. 6, May 24, 1884, J. H. H., N. P. and Spec. Ex'r, and tell us whether you prepared it; and, if so, by what process?

Same obj. as to R. D. Q. 183.

A. I treated it by the concentrated solution of peroxide of hydrogen in the ordinary way.

195 R. D. Q. Have you examined Ex. No. 6 under the same magnifying conditions as were used in the other cases?

Same obj. as to R. D. Q. 183.

A. Yes, sir.

196 R. D. Q. What is its appearance under the glass, as to knots or irregularities on the surface?

Same obj. as to R. D. Q. 183.

A. It is the same in appearance or similar to those I have described. Its general appearance is the same.

197 R. D. Q. How does this hair compare with the other Exhibits as to its fineness?

Same obj. as to R. D. Q. 183.

A. This hair, compared with the others, is rather finer; it is a little finer.

198 R. D. Q. What kind of hair was this Ex. 6 before it was treated?

Same obj. as R. D. Q. 183.

169 A. Raw Chinese hair.

199 R. D. Q. This has not been colored, has it?

Same obj. as to R. D. Q. 183.

A. No; it is just as it comes from the treatment.

200 R. D. Q. Have you tested the hair Ex. No. 6 in connection with the other exhibits, or can you say whether it is stronger or otherwise than the others?

Same obj. as to R. D. Q. 183.

A. I have not tested it as to strength and don't know the difference now.

No recross-examination by complainants' counsel.

C. MARCHAND.

Taken, subscribed, and sworn to before me this 24th day of May, A. D. 1884.

J. HOMER HILDRETH,
Notary Public and Special Examiner by Consent.

Adjourned, at request of defendant's counsel, to May 31st, 1884, 11 a. m.

J. H. H.,
N. P. and Spec. Ex'r.

Adjourned, at request of defendant's counsel, to May 31st, 1884, 11 a. m.

J. H. H.,
N. P. & Spec. Ex'r.

170 NEW YORK, *May* 31*st*, 1884.

Met pursuant to adjournment.

Present: Counsel as before.

Further adjournment had, at request of defendant's counsel, to 1 p. m. this day.

MAY 31, 1884—1 p. m.

Met pursuant to adjournment.

Present: Counsel as before.

EMILE JEANTET, the defendant, recalled in his own behalf, testifies as follows in answer to his counsel's interrogatories:

18 R. D. Q. Defendant's Exhibit No. 4 Marchand, for identification, April 28, 1884, is now shown you; please state where the three *meches* composing that exhibit came from.

(Obj. to as immaterial.)

The darkest one of the three came from Mr. Marchand. I procured it from him. The one marked by the examiner "Jeantet 1" to distinguish it from the two other *meches* annexed to it came from Paris, France.

19 R. D. Q. When did you import that?

(Same obj. as to R. D. Q. 18.)

A. About four years ago.

171 20 R. D. Q. Did you import that at the same time that you imported the Complainant-' Exhibits Kraus, which were purchased at your establishment?

(Same obj. as to R. D. Q. 18.)

A. Yes.

21 R. D. Q. Where did the third *meche* of Defendant's Exhibit 4 Marchand, for identification, come from?

(Same obj. as to R. D. Q. 18.)

A. I bought it from John Béné, the complainant, last year—1883.

22 R. D. Q. How long have you dealt in hair?

(Same obj. as to R. D. Q. 18.)

A. Twenty years.

23 R. D. Q. And do you consider yourself an expert in the business?

A. Yes.

24 R. D. Q. Have you examined the three specimens of hair marked Def't's Exhibit 4 Marchand, for identification, Apr. 28, '84?

A. I have.

25 R. D. Q. Except the color, do you perceive any difference in the three specimens composing that Exhibit 4?

(Same obj. as to R. D. Q. 18, and as leading.)

A. I don't.

26 R. D. Q. In your judgment, would it be possible for anybody to tell whether the three specimens forming that exhibit had been treated in the same manner or by three different processes?

(Same obj. as to R. D. Q. 25.)

A. No; I don't believe that any one can tell by what process it was made.

And the witness, being examined by counsel for complainant, on recross testifies:

27 R. X Q. How are you enabled to say by the slight examination you have now made where you obtained each of these three specimens of hair?

A. I know these three bunches of hair very well, because I put them up together myself. I remember the string and paper put on and the color of each bunch.

28 R. X Q. Is the string different from the string you ordinarily use in putting up bunches of hair?

A. It is different string.

29 R. X Q. How does it differ in color or texture?

A. In color and thickness.

30 R. X Q. How much hair was there in the package which you imported about four years ago, of which you say a portion of the Exhibit 4 is a part?

A. I don't exactly remember. I can't tell the number of pounds; about 125 pounds; it cost about $1,000; about 200 pounds I now think.

31 R. X Q. How are you enabled to remember that the hair in Exhibits Kraus was imported at same time?

A. Because I did not have any such hair of that kind in the place when I imported that lot.

32 R. X Q. How much hair did you buy of Béné at the time you bought the hair in this Exhibit 4?

A. About sixty pounds.

33 R. X Q. Are you a chemist?

A. No, sir.

34 R. X Q. Have you ever refined hair by chemical processes?

173 A. No.

35 R. X Q. Are you familiar with the chemical actions and reactions which take place in the process of refining hair?

A. No.

36 R. X Q. Are you a party to an agreement in which the several parties bind themselves to join in and share the expenses of defending suits against infringers of John Béné's patent, under which this suit is brought?

(Obj. to as incompetent and immaterial.)

A. I heard about the agreement, but I don't belong to it.

37 R. X Q. Have you not stated that you were a party to such an agreement?

(Same obj. as to R. X Q. 36.)

A. I do not remember of saying that.

38 R. X Q. Do you remember the time when Mr. Béné's suit against Louis Bowsky was commenced?

A. Yes, I remember the occurrence.

39 R. X Q. Did you not at that time, or immediately thereafter, meet Mr. Bowsky, Mr. Lois Rossignot, and others at the St. Nicholas Hotel, Broadway, N. Y., for the purpose of organizing a joint defence against Mr. Béné's prosecutions?

(Same obj. as to R. X Q. 36.)

A. We met there to speak to Mr. Béné, but not for making an agreement to defend a suit against us.

40 R. X Q. What was the object of that meeting?

A. To speak to Mr. Béné and tell him not to bring a suit
174 against us, to leave us alone; but I see we did not succeed.

41 R. X Q. Was Mr. Béné one of the party—was he present?

A. Mr. Béné was to be there, but we only met him a little afterwards in the street.

42 R. X Q. Then do you mean to say that you have no arrangement of the description mentioned with any parties?

(Same obj. as to R. X Q. 36.)

A. Yes.

43 R. X Q. Do you know of any such arrangement between other parties?

(Same obj. as to R. X Q. 36.)

A. No, sir.

44 R. X Q. Did you see Mr. Smith, complainants' counsel, at the St. Nicholas Hotel at the time of such meeting?

A. I am not sure, but seems to me I saw him in the street.

And, being further examined by his own counsel, defendant testifies:

45 R. D. Q. To whom did you deliver Defendant's Exhibit 4 Marchand, for identification, after making it up?

A. To Mr. Melvin, my attorney.

E. JEANTET.

Taken, subscribed, and sworn to before me this 31st day of May, A. D. 1884.

J. HOMER HILDRETH,
Notary Public and Special Examiner by Consent.

175 It is admitted that Defendant's Exhibit 4 Marchand, for identification, April 28th, '84, was delivered to Mr. Melvin, defendant's solicitor, who has had it in his possession ever since, and produces it upon the hearing.

Defendant's counsel now offers in evidence Defendant's Exhibit No. 1, for identification, Dec. 4, '83, and same is marked Exhibit I.

Also Defendant's Exhibit No. 6 Marchand, March 24, 1884, and same is marked Exhibit No. 6.

Also Defendant's Exhibit No. 1 Marchand, April 23, '84, for identification, and same is marked Exhibit I Marchand; also Defendant's Exhibit No. 2 Marchand, April 23, '84, for identification, and same is marked Exhibit 2 Marchand.

Also Defendant's Exhibit No. 3 Marchand, April 23, '84, for identification, and the same is marked Exhibit 3 Marchand.

Also Defendant's Exhibit No. 4 Marchand, for identification, April 28, '84, and the same is marked Exhibit 4 Marchand accordingly.

J. H. H.,
N. P. and Spec. Ex'r.

Defendant's testimony closed.

176 I, the undersigned, a special examiner duly appointed and acting in this cause by consent to take the testimony on behalf of defendant, as well as that heretofore taken on behalf of complainants, and likewise a notary public, duly commissioned and qualified, do hereby certify that, on the several days named in the depositions hereunto annexed and herewith transmitted, I was attended at the place named in the caption and pursuant to stipulation of April 18th, 1884, by counsel for defendant and the complainants, respectively, and the witnesses named in the aforesaid deposition.

That said witnesses and each of them were duly sworn and examined and their depositions duly taken and subscribed, as appears in the record; that the exhibits marked and likewise hereto annexed were duly introduced in evidence in said cause during the taking of the depositions to which the same each belong, and the same still remain in the same condition as when so introduced before me.

And I further certify that the foregoing record comprises defendant's complete case in defense as presented in this cause before me to date, and that I am not connected by blood or marriage with either of the parties litigant herein, nor interested in the matter in controversy directly or indirectly.

In testimony whereof I have hereunto set my hand and affixed my seal of office, at the city of New York, in the county and State of New York, this 31st day of May, A. D. 1884.

[L. S.] J. HOMER HILDRETH,
Notary Public and Special Examiner by Consent.

177 DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the petition, oath, and specification as originally filed

in the matter of the letters patent No. 184,577, granted to John Béné November 21, 1876, for improvement in process for bleaching and refining human hair.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 31st day of March, in the year of our Lord one thousand eight hundred and eighty-two, and of the Independence of the United States the one hundred and sixth.

[L. S.] E. M. MARBLE,
Commissioner.

178 *Petition.*

To the Commissioner of Patents:

Your petitioner prays that letters patent may be granted to him, a resident of the city of Brooklyn, county of Kings, and State of New York, for the process as set forth in the annexed specification, and he hereby appoints A. L. Munson, of 239 Broadway, New York city, his attorney, with full power of substitution and revocation, to prosecute this application, to make amendments and alterations therein, to sign the drawings, to receive the patent, and to transact all business in the Patent Office connected therewith.

JOHN BÉNÉ.

Endorsed: Patent Office, May 3, 1876.

179 *Oath.*

STATE OF NEW YORK,
City of Brooklyn, County of Kings, } ss:

John Béné, being duly sworn, deposes and says that he verily believes himself to be the original and first inventor of the process of bleaching and refining human hair as described in the annexed specification; that he does not know and do- not believe that the same was ever before known or used, and that he is a citizen of the United States.

JOHN BÉNÉ.

Sworn to and subscribed before me this 16th day of March, 1876.

_____,
Notary Public.

(Endorsed: Patent Office, May 3, 1876.)

180 *Specification.*

To all whom it may concern:

Be it known that I, John Béné, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful process for bleaching and refining human hair, which process is fully set forth and described in the following specification:

This invention relates to that class of processes employed for bleaching and refining the coarse black human hair such as is im-

ported from China and Japan, and which in its natural state is unfit for use or sale in this market. The present process consists of a method of bleaching and refining by the use of certain chemicals, the combination and use of which is varied according to the fixed color that is to be given the hair when finished.

181 In carrying out my invention for the purpose of producing from the coarse black hair alluded to a soft hair of a dark brown hue, I mix in a vat of glass or other suitable material four quarts of muriatic acid and one ounce of chloride of potash, into which solution the hair is dipped and retained until the desired fineness and shade or color is obtained.

To change the same grade of black hair to a chestnut brown I mix four quarts of muriatic acid, two ounces of chloride of potash, and one ounce bichromate of potash, into which the hair is immersed until the desired color is obtained.

To produce a medium brown shade from the same grade of black hair I mix 1½ lbs. bichromate of potash, one ounce sulphuric acid, five ounces fluoric acid, and sixteen quarts of warm water, and into this bath the hair is placed until it assumes the color desired.

182 To produce a light brown color I add to the bath for producing medium brown sixteen ounces of muriatic acid, and immerse the hair therein as in the previous case.

These processes all tend to the refining of the hair in addition to the bleaching, and they give it a soft appearance, entirely unlike the hair in its original state.

In order to set the colors obtained by the processes as above detailed I prepare a bath as follows, which may be mixed in any suitable vessel:

Four gallons warm water, one quart of muriate of tin, one ounce of bisulphide of soda, and four ounces of muriatic acid—

The bleached hair being immersed in this bath until the colors are firmly set.

As a finishing process for removing all impurities I wash the hair in a final bath of water and ammonia, after which it is spread and dried, when it is ready for market.

183 The hair, after being manipulated by my process as described, loses all of its original harshness of texture and color and assumes a soft, silken texture as well as a brilliant color, whose lustre is permanently retained.

I claim as my invention the process of bleaching and refining human hair by means of a bath of muriatic acid, ch-oride of potash, bichromate of potash, fluoric acid, sulphuric acid, and warm water, in the quantities as named, which refines the hair and gives the color, and a second bath composed of muriate of tin, bisulphide of soda, muriatic acid, and warm water in the quantities as named, which fixes the color, substantially as and for the purposes as herein set forth.

JOHN BÈNÈ.

In presence of—
A. L. MUNSON.
LEWIS WILKENSON.

Ex'd: E. McK., E. L. L.

184 Endorsed: Patent Office, May 3, 1876. 6333, D'r '82. Filed Aug. 19, 1885.

185 At a stated term of the circuit court of the United States of America for the southern district of New York, in the second circuit, held at the United States court-rooms, in the city of New York, on Monday, the twenty-third day of February, in the year of our Lord one thousand eight hundred and eighty-five.

Present: The Honorable William J. Wallace, circuit judge.

Feb. T., 1885. Equity Cal.

JOHN BÉNÉ *et al. vs.* EMILE JEANTET.

The above cause coming on for final hearing upon pleadings and proofs, Mr. Samuel T. Smith is heard in behalf of complainant-; Mr. D. W. C. Brown is heard in behalf of defendant.

Further argument adj. to 4th inst.

186 At a stated term of the circuit court of the United States of America for the southern district of New York, in the second circuit, held at the United States court-rooms, in the city of New York, on Wednesday, the twenty-fifth day of February, in the year of our Lord one thousand eight hundred and eighty-five.

Present: The Honorable William J. Wallace, circuit judge.

Feb. T., '85. Eq. Cal.

JOHN BÉNÉ *vs.* EMILE JEANTET.

The argument in the above cause being resumed this day, pursuant to adjournment, Mr. Smith is heard in behalf of the complainant.

C. A. V.

187 *Opinion.*

United States Circuit Court, Southern District of New York.

JOHN BÉNÉ *et al. vs.* EMILE JEANTET.

WALLACE, *J.:*

The patent in suit (reissue No. 8637, dated March 25, 1879, to John Béné, of Brooklyn) cannot be construed as broadly as is contended for by the complainants. If the first claim is interpreted to cover any method of refining coarse hair by treating it to a bath of such chemicals as will reduce the diameter of each hair it is void for uncertainty in the specification. The specification reads: "In carrying out my invention (for the purpose of refining coarse hair) I treat the said coarse hair to a bath of such chemicals or chemical substances as will dissolve away a portion of the surface of each hair and thus reduce its diameter. I find that a solution of a chlorine salt dissolved in an excess of muriatic acid serves my purpose as a

bath for this refining treatment, and I prefer," etc. Were it not for the latter part of this description the specification would fail
188 to comply with the statute. Those skilled in the art would derive no information from it which they did not already possess. The patent is, therefore, to be construed as one for a process of refining hair by treating it in a bath composed of a solution of chlorine salt dissolved in an excess of muriatic acid, and the claims are to be limited accordingly.

So far as appears by the proofs, Béné was the first discoverer of a process for refining hair. The fact that samples of refined hair were seen in Paris about the time Béné made his discovery is not material, in the absence of any denial in the answer that Béné was the first and original discoverer of the process or of any allegation of want of novelty. As the case is presented he must be deemed the pioneer, and it follows that if the hair dealt in by the defendant was refined by a treatment in a bath of the chemicals mentioned in the specification, or of their equivalent, which contribute to produce the same result by substantially the same chemical action, the claims of the patent are infringed.

189 The hair dealt in by the defendant was purchased in France, and the only question of fact in the case is whether it was refined by the patented process. The complainants rest their case upon the theory asserted by their expert, Mr. Keith, that refined hair like the defendant's article cannot be produced except by the trea-ment in a bath of a chlorine salt and muriatic acid or their chemical equivalents. The defendant produces an expert, Mr. Marchand, who asserts the contrary, and who presents various samples of hair which he states he refined himself by the use of different chemicals. It is quite impossible to reconcile the testimony of these two witnesses. An inspection of the exhibits on both sides does not aid the investigation

If Mr. Marchand is an honest witness the experimental tests made by Mr. Keith to show that Marchand's formulas will not refine hair only prove that Keith did not pursue the formulas intelligently or faithfully. The issue is resolved into a naked question of credibility between these two witnesses. There may be enough in
190 Keith's testimony and in the cross-examination of Marchand to suggest suspicion that the testimony of the latter is unreliable, but there certainly is not sufficient to subject him to the imputation of perjury. Ordinarily under such circumstances it would be a proper exercise of discretion to direct an issue to be tried by a jury; but in the present case the complainants defeated the effort of the defendant to answer generally upon the merits, and confined himself solely to contesting infringement. Upon that issue they have not succeeded in establishing their case by a fair preponderance of testimony.

It is more just to hold them to the result than to permit them to go to a jury, when, if they succeeded, it might well be that complete justice would not be done between the parties.

The bill is dismissed with costs, but without prejudice to complainants bringing an action at law if they are so advised.

191 (Endorsed:) United States circuit court, southern district of New York. John Béné *et al. v.* Emile Jeantet. Opinion. Wallace, J. U. S. circuit court. Filed March 6, 1885. Timothy Griffith, clerk.

192 At a stated term of the circuit court of the United States of America for the southern district of New York, in the second circuit, held at the court-rooms, in the post-office building, in the city of New York, on the 3d day of March, A. D. 1885.

Present: Hon. William J. Wallace, judge.

JOHN BÉNÉ and ADOLPH GRÜNBERG *vs.* EMILE JEANTET.

This cause, having come on to be heard at this term on the pleadings and proofs taken and filed in the cause, and having been argued for the respective parties, now, therefore, upon consideration
193 thereof, it is ordered, adjudged, and decreed that the complainants' bill of complaint be, and the same hereby is, dismissed, with one hundred and seventy-three $\frac{23}{100}$ dollars costs to the defendant, Emile Jeantet, against the complainants, John Béné and Adolph Grünberg, and that said defendant have execution therefor.

And further ordered, adjudged, and decreed that said dismissal is without prejudice to said complainants bringing an action at law, if they are so advised.

WM. J. WALLACE.

Endorsed: U. S. circuit court. John Béné & ano., plaintiffs, against Emile Jeantet, defendant. Decree dismissing bill. William P. S. Melvin, att'y for def't, 407 Broadway, New York city.
194 Consented to as to form. Sam. Tro. Smith, sol'r for complainant. U. S. circuit court. Filed Mar. 17th, 1885. Timothy Griffith, clerk.

195 U. S. Circuit Court, Southern District of New York.

JOHN BÉNÉ & ADOLPH GRÜNBERG *vs.* EMILE JEANTET.

We hereby consent that the foregoing papers, including letters patent number 184,577, shall constitute the record to be sent by the clerk of the circuit court of the United States for the southern district of New York to the U. S. Supreme Court on the appeal to said Supreme Court in the above-entitled cause, and that the exhibit in the cause be retained by the clerk of said circuit court until the hearing of said cause in the U. S. Supreme Court.

New York, Aug. 17, 1885.

SAM. TRO. SMITH,
Solicitor for Complainant-.
WM. P. S. MELVIN,
Solicitor for Def't.

(Endorsed:) U. S. circuit court. Filed Aug. 20, 1885. Timothy Griffith, clerk.

196 United States Circuit Court, Southern District of New York.
In Equity.

JOHN BÉNÉ and ADOLPH GRÜNBERG, Complainants and Appellants,
vs.
EMILE JEANTET, Defendant and Appellee.

To the Honorable the Supreme Court of the United States:

The appeal of John Béné and Adolph Grünberg, the above-named complainants and appellants, respectfully showeth—

That on the 24th day of April, 1882, the above-named John Béné and Adolph Grünberg filed their bill of complaint in the circuit court of the southern district of New York against the above-named defendant and appellee to enjoin and restrain the said defendant and appellee from infringing the reissued letters patent of the United States granted to the said John Béné, dated the 25 day of March, 1879, and numbered 8637, which letters patent were for improvement in the treatment of hair, and were owned by the said complainant and appellant Béné, the complainant and appel-
197 lant Adolph Grünberg holding an exclusive license thereunder, and also praying for an account of profits and assessment of damages arising from said infringement; that a subpœna issued out of said court was duly served on the said defendant and appellee; that the defendant and appellee put in an appearance on the 5th day of June, 1882, and, on the 3d day of July, 1882, filed exceptions to the bill for scandal and impertinance; that, such exceptions not being brought to arguement, and no answer or demurrer being filed, on the 1st day of March, 1883, said complainants and appellants entered a rule *pro confesso;* that on the 27th day of April, 1883, said defendant and appellee made a motion to open defendant's default, which was granted on terms; that on the 2d day of August, 1883, said defendant and appellee filed his answer denying the infringement, but not putting in issue the validity of the patent; that on the 4th day of September, 1883, the complainants and appellants filed a general replication, whereupon such proceedings were had in the cause that on the 3d day of March, 1885, a final
198 decree was made in said circuit court, wherein it was in substance adjudged and decreed that the said bill of complaint be dismissed, with one hundred and seventy-three dollars and twenty-three cents costs, on which decree a judgment was entered in said circuit court on the 17th day of March, 1885, for said sum of $173.23 in favor of defendant and appellee, which said decree and judgment is, as complainants and appellants are advised, erroneous, and ought to be reversed.

Wherefore these appellants appeal from the whole of said decree of said circuit court to the Supreme Court of the United States, and respectfully pray that the decree of the said circuit court and the bill, answer, pleadings, deposition, evidence, and proceedings in the said cause may be sent to the Supreme Court of the United States without delay, and that the Supreme Court will proceed to hear the same anew, and that the said decree of the circuit court and every

part thereof may be reversed or such other decree made as to the said Supreme Court shall seem just.

199 JOHN BÉNÉ AND
ADOLPH GRÜNBERG,
By their solicitor, SAM. TRO. SMITH.

SAM. TRO. SMITH,
Solicitor and of Counsel for Complainants and Appellants.

The foregoing appeal is allowed.
March 27th, 1885.

WM. J. WALLACE.

[Endorsed:] U. S. circuit court, so. dist. of New York. In equity. John Béné and Adolph Grünberg *vs.* Emile Jeantet. Copy appeal. Sam. Tro. Smith, sol'r for compl'ts, 291 Broadway, New York city. U. S. circuit court. Filed Mar. 27, 1885. Timothy Griffith, cl'k.

SOUTHERN DISTRICT OF NEW YORK, } ss:
City & County of New York, }

200 Charles A. Cushing, being duly sworn, says that on the 27th day of March, 1885, he served the within bond on Wm. P. S. Melvin, solicitor for the defendant, Emile Jeantet, by leaving a true copy thereof at his office, between 2 & 3 o'clock p. m., in his absence, with a person of full age in charge of said office.

CHARLES A. CUSHING.

Sworn to before me this 27th d'y of March, 1885.
[L. S.] J. HOMER HILDRETH,
Notary Public, N. Y. Co.

201 United States Circuit Court, Southern District of New York.
In Equity.

JOHN BÉNÉ and ADOLPH GRÜNBERG *vs.* EMILE JEANTET.

To the honorable the Supreme Court of the United States:

Know all men by these presents that we, William Blossfeld, of the village of Flatbush, in the county of Kings and State of New York, and Thomas Salt, of the city of Brooklyn, in the county of Kings and State aforesaid, are held and firmly bound unto the above-named Emile Jeantet in the sum of one thousand dollars, to be paid to the said Emile Jeantet or his assigns; for the payment of
202 which, well and truly to be made, we bind ourselves and each of us, our and each of our heirs, executors, and administrators, jointly and severally, firmly by these presents.

Sealed with our seals and dated the twenty-sixth day of March, in the year of our Lord one thousand eight hundred and eighty-five.

Whereas the above-named John Béné and Adolph Grünberg have if taken an appeal to the Supreme Court of the United States to re-

verse the decree rendered in the above-entitled cause by the circuit court of the United States for the southern district of New York:

Now, therefore, the condition of this obligation is such that if
203 the above-named John Béné and Adolph Grünberg shall prosecute their said appeal to effect and answer all costs and damages if they shall fail to make good their plea on said appeal, then this obligation shall be void; otherwise the same shall be and remain in full force and virtue.

WILLIAM BLOSSFELD. [L. S.]
THOMAS SALT. [L. S.]

Sealed and delivered, taken and acknowledged, this twenty-sixth day of March, 1885, before me—

[L. S.] J. HOMER HILDRETH,
Notary Public, N. Y. Co.

UNITED STATES OF AMERICA,
Southern District of New York, City and County of New York, } ss:

William Blossfeld, being duly sworn, deposes and says that he is a freeholder residing in the village of Flatbush, in the county
204 of Kings, State of New York, and that he is worth the sum of two thousand dollars over and above all his just liabilities.

WILLIAM BLOSSFELD.

Subscribed and sworn to before me this twenty-sixth day of March, 1885.

[L. S.] J. HOMER HILDRETH,
Notary Public, N. Y. Co.

UNITED STATES OF AMERICA,
Southern District of New York, City & County of New York, } ss:

Thomas Salt, being duly sworn, says that he is a freeholder residing in the city of Brooklyn, county of Kings, and State of
205 New York, and that he is worth the sum of two thousand dollars over and above all his just liabilities.

THOMAS SALT.

Subscribed and sworn to before me this twenty-sixth day of March, 1885.

J. HOMER HILDRETH,
Notary Public, N. Y. Co.

(Endorsed:) U. S. circuit court, so. dist. of New York. In equity. John Béné and Adolph Grünberg *vs.* Emile Jeantet. Bond on appeal to Supreme Court. Sam. Tro. Smith, sol'r for compl't-, 291 Broadway, New York city. The within bond on appeal is approved Mar. 27, 1885. W. J. Wallace. Appr. as to form and sufficiency of sureties this 8th day of April, 1885. Timothy Griffith, clerk.
206 U. S. circuit court. Filed Mar. 27, 1885. Timothy Griffith, clerk.

207 By the Honorable Wm. J. Wallace, one of the judges of the circuit court of the United States for the southern district of New York, to Emile Jeantet:

Whereas John Béné and Adolph Grünberg have lately appealed to the Supreme Court of the United States from a decree lately rendered in the circuit court of the United States for the southern district of New York, made in favor of you, the said Emile Jeantet, and have filed the security required by law:

You are therefore hereby cited to appear before the said Supreme Court, at the city of Washington, on the second Monday of October, A. D. 1885, to do and receive what may appertain to justice to be done in the premises.

208 Given under my hand, at the city of New York, in the second circuit, the 27th day of March, in the year of our Lord one thousand eight hundred and eighty-five.

WM. J. WALLACE.

SOUTHERN DISTRICT OF NEW YORK,
State of New York, City & County of New York:

Charles A. Cushing, being duly sworn, says that on the 27th day of March, 1885, he served the foregoing citation on W. P. S. Melvin, solicitor for the defendant, Emile Jeantet, by leaving a true copy thereof in his office, between 2 and 3 o'clock p. m., in his absence, with a person of full age in charge of said office.

CHARLES A. CUSHING.

Sworn to before me this 27th day of March, 1885.

J. HOMER HILDRETH,
Notary Public, N. Y. Co.

209 (Endorsed:) U. S. circuit court, so. dist. of New York. In equity. John Béné and Adolph Grünberg *v.* Emile Jeantet. Citation. Sam. Tro. Smith, sol'r for compl'ts & appellants, 291 Broadway, New York city. U. S. circuit court. Filed Mar. 27, 1885. Timothy Griffith, clerk.

210 UNITED STATES OF AMERICA, } ss:
Southern District of New York, }

I, Timothy Griffith, clerk of the circuit court of the United States of America for the southern district of New York, in the second circuit, do hereby certify that the foregoing pages, numbered from one to two hundred and nine, inclusive, contain a true and complete transcript of the record and proceedings had in said court in the case of John Béné and Adolph Grünberg, complain'ts and appellants, against Emile Jeantet, defendant and appellee, as the same remain- of record and on file in said office.

In testimony whereof I have caused the seal of the said court to

be hereunto affixed, at the city of New York, in the southern district of New York, in the second circuit, this 20th day of August, in the year of our Lord one thousand eight hundred and eighty-one, and of the Independence of the United States the one hundred and tenth.

[Seal of the U. S. Circuit Court, South'n Dist. of New York.]

TIMOTHY GRIFFITH, *Clerk.*

Endorsed on cover: S. New York C. C. U. S. No. 167. John Béné and Adolph Grünberg, appellants, *vs.* Emile Jeantet. Filed October 20, 1885.

Supreme Court of the United States,

OCTOBER TERM, 1888.

No. 167.

JOHN BÉNÉ AND ADOLPH GRÜNBERG,
Appellants,

against

EMILE JEANTET.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR SOUTHERN DISTRICT OF NEW YORK.

APPELLANTS' POINTS.

SAM. TRO. SMITH,
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and of Counsel,
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New York City.

LIVINGSTON MIDDLEDITCH, Printer, 26 Cortlandt Street.

U. S. Supreme Court.

JOHN BÉNÉ AND ADOLPH GRÜNBERG, Appellants, vs. EMILE JEANTET, Appellee.	In Equity.

Appeal from the Circuit Court for the Second Circuit and Southern District of New York.

Statement of Case.

This cause was commenced by Bill of Complaint, April 25, 1882, for an injunction, accounting and damages, for the infringement of reissued Letters Patent, issued from the United States Patent Office to complainant, John Béné, on the 25th day of March, 1879, and numbered 8637, for an improvement in the treatment of hair. (Printed Record, pp. 48 to 50.)

The answer of the defendant does not controvert the validity of the Letters Patent, nor allege want of novelty; the issue being subtantially restricted to a denial of infringement. (Printed Record, p. 10.)

On the trial of the cause in the Circuit Court the bill was dismissed on the grounds that the first

claim of the patent was void for uncertainty, and that the patent must be construed as one for a process of refining hair by treating it in a bath composed of a solution of a chlorine salt dissolved in an excess of muriatic acid ; and the claims thereof limited accordingly. (Printed Records, p. 112, folios 187–188.)

Assignment of Error.

It is contended on the part of the appellants, that the Circuit Court before which the cause was heard erred.

First.—In holding the first claim of the patent void for uncertainty.

Second.—In holding the patentee to a narrow construction of the patent, and limiting him to his second claim.

Third.—In holding that the complainants had failed to prove the infringement.

Fourth.—In holding that there was not a fair prepondence of testimony in favor of complainant.

Fifth.—In not holding that defendant had infringed the sixth claim of the letters patent.

Sixth.—In not holding that all the claims of the patent were valid, and that the defendant had infringed the First, Second and Sixth Claims, and directing a decree for an injunction, accounting, and assessment of damages.

In view of the pleadings in the case, it is only necessary to consider the following questions, in connection with the assignment of error.

First.

What are the nature and scope of the patent, as elucidated by the specification?

Second.

Do the goods sold by the defendant, or the method or process by which they are treated, come within the description of such goods and process, as set forth in the claims and specification of Béné's reissued Letters Patent, No. 8637?

Third.

Are the complainants entitled to a decree for an injunction, accounting, and damages?

POINT I.

The nature of the claims is, a discovery that the disintegrating property of a certain class of chemicals, can be utilized to reduce the diameter of hair, without destroying it, by using such chemicals in a bath in which the hair is dipped and manipulated, and

The scope of the patent is broad enough to cover the use of all chemicals, which, when so used, will corrode, dissolve away, oxidize, or in any way disintegrate the surface of the hair so as to reduce its diameter, without destroying the remaining portion.

First Claim

The first claim of the patent is for the "Method of refining all grades of coarse hair, which consists in subjecting it to the action of chemicals, whereby the surface of each hair is corroded or dissolved away, and its diameter reduced substantially as set forth."

a.—This claim is generic, for a discovery or invention which is new; for a method of treating hair previously unknown in the art; producing an effect and product equally unknown and new; viz., the effect of reducing coarse hair to hair of fine texture; and the product of fine hair, manufactured from coarse hair.

The disintegrating power of chemicals has long been known, and thousands of inventions are based upon their application to the arts; but Mr. Béné was the first to discover a method by which this power could be applied to refining, or reducing the diameter of hair; and being the pioneer in this field of discovery is entitled to a broad claim to cover that invention.

This claim should not be limited to any specific chemical or combination of chemicals, but should be extended to all such, as by their well known force and reaction, would produce the same effects and products in the same way, according to his claims and specification liberally construed.

b.—This claim, standing alone without other aid than the specification, would enable those skilled in the art to practice the method, and produce the refined hair.

A skilled chemist would be able to select such chemicals as would corrode, dissolve away, oxidize or disintegrate, the substance com-

posing the hair tissue; this would come within his chemical knowledge.

The specification points out the proper method of applying them, viz: the combination of the ingredients in a bath, and the dipping, manipulation and treatment required.

It should be borne in mind that the discovery on which the patent is founded is not the power of the chemicals to disintegrate animal tissue; that was already well known; but the method of treatment which will by the use of such chemicals reduce the diameter of the hair without destroying its identity or integrity.

If the description contained in the patent is sufficient to enable a skilled chemist to carry out the process, it is all that the law requires.

This description need not be couched in strictly technical terms, to be construed by strictly technical rules; common words and expressions, which convey a common meaning, are to be liberally construed.

The specification describes the method as a treatment in a bath, by dipping, manipulation, washing and cleansing.

For specific illustration, one particular bath is described as the one preferred by the inventor.

The fact that he *prefers* this bath is conclusive that his invention is not confined to this one, but includes others which will accomplish the purpose, but not equally to the taste of the inventor.

He might have described many baths, each with different corroding, dissolving or disintegrating substances, but the one is sufficient to enable the skilled chemist to carry out his discovery with all similar ingredients.

He mentions several different acids and other

chemical compounds not named in the second claim, the use of which he recommends under certain circumstances.

He describes the vessels in which he places the liquid, and the manner of applying by dipping and manipulating.

All this description is applicable to the first claim, as well as the others, and gives ample instructions to those skilled in the art to enable them to carry out the invention.

There is no uncertainty about it. It is to be done substantially as set forth ; that is, by dipping and manipulating in the disintegrating bath till the desired fineness is obtained, with subsequent washing and cleansing.

Second Claim.

The second claim is for "the method of refining coarse hair, which consists in subjecting it to the action of a bath composed of muriatic acid, in which is dissolved a chlorine salt, substantially as set forth."

a.—This claim is specific, and is intended to cover one phase of the method or treatment included in the invention and discovery.

It embodies the acid and salt preferred by the inventor.

It does not in any sense limit the first claim.

It leaves those who choose to avail themselves of the discovery, to use any other disintegrating acid or salt which they may prefer or fancy.

It simply points out one of the disintegrating baths that may be used in carrying out the invention described in the first claim, and in the

first clause of the specification, descriptive of the method of treatment [printed record, page 49, 10th line from top], viz. : one bath for subjecting the coarse hair to the action of the chemicals to produce the desired effect.

Third Claim.

The third claim covers refining and bleaching in a chemical bath of acid and a chlorine salt, and then in a bleaching bath.

a.—This claim is also specific, and describes another manner of carrying out the refining process claimed generically in the first claim, with the addition of a bleaching bath.

It is broader than the second claim, in that it does not specify any one acid, but leaves the operator to select at his option from among the well-known disintegrating acids one which will produce the desired reaction.

This claim has no limiting effect on the first claim.

Fourth Claim.

This claim is also specific, the refining clause being as broad as in the third claim; and also contains bleaching and fixing baths.

It has no limiting effect on the first claim.

Fifth Claim.

This claim is also specific; the refining clause being as broad as the third claim; and also contains bleaching, fixing and cleansing baths.

It contains nothing that can have any limiting effect on the first claim.

The first claim is generic, for the real discovery, viz: for the reduction of the diameter of hair, so as to make a fine grade of hair from a coarse, unmarketable hair, by dipping and manipulating it in a bath of such chemicals as will disintegrate and remove its surface, until it is of the desired fineness.

The second, third, fourth and fifth claims are specific and subsidiary, not limiting the first claim, but explaining the details of the treatment and covering also bleaching and cleansing baths.

Sixth Claim.

The sixth claim is for a new article of commerce and manufacture; hair of fine texture produced from any grade of coarse hair, either animal or human, by the method of refining substantially as described.

a.—This claim is generic and refers to the kind of hair which is produced by the process referred to in the first claim.

The article, at the time of the discovery of Béné, was new, never before having been known or used.

b.—This claim is a valid and legitimate claim for a new article of commerce and manufacture, and the patent properly covers all such goods, produced by any process of refining like that referred to in the patent—viz., by subjecting it to the action of chemicals, whereby the surface of each hair is disintegrated and removed substantially as described.

The nature and scope of the invention and claims must be ascertained from the instrument itself, without reference to extrinsic evidence. The answer does not deny that Bêrié was the first and original discoverer of the process, or allege want of novelty.

POINT II.

The process by which the hair sold by Jeantet was refined is the same as that described in Béné's patent, viz., the removal of the surface by the use of chemicals which disintegrate the substance, the chemicals used being the same specified by Béné in his claims and specification. or their equivalents.

a.—The removing of the surface by disintegrating chemicals is the invention or discovery made by Béné, plainly indicated and described in his specification and claims.

The method employed by him for the purpose was the use of such chemicals in a bath in which he dipped and manipulated the hair until a sufficient quantity of the surface was removed to reduce the hair to the desired fineness (Printed record, p. 49, 18th line).

If his discovery had been limited to the solulution described in his second claim; why does he call that his *preferred* solution? And why does he name other acids and ingredients when a *more intense* bath is desired? And why does he not limit all his claims to *muriatic* acid?

That his invention covers all that the process will accomplish by the use of any disintegrating chemicals, is evident from the testimony of both the experts who testified.

All that is claimed to be accomplished by the use of such chemicals is, the disintegrating and removing of the surface of the hair, by immersing and manipulating it in a chemical bath.

The only process by which this can be done is to use such chemicals as will disintegrate the surface, and not destroy the integrity of the hair.

b.—The witness Keith testifies to the effect of the solution named in the second claim, as dissolving rapidly from the surface of the hair a portion of its material, and thus reducing the hair in diameter (printed record, p. 33, ans. 6), and in the next answer names other chlorates and chlorides which act in a similar way, "when materials are present which give oxygen to the bath;" showing that in the general term "dissolution" he includes oxidation, which may take place in the bath.

In ans. 12 he describes the action of the bath, showing oxidation, and characterizing the action as both a solvent and disintegrating one.

In answer 19 he says that any method under which, by the action of chemicals, the surface of the hair is dissolved or corroded away, so as to reduce its diameter, comes within the province, or falls within one or more of the claims of the patent, and gives his reasons.

In ans. to q. 81 (printed record, p. 42), he describes Béné's method as he saw it performed at Béné's factory.

c.—The witness Marchand, in describing the known oxidizing agents, says, "and another, which has been used for many years in the laboratories, and very powerful, is the reaction which takes place when you put some chlorate of potash in

some muriatic acid. The gases which are generated in that reaction have a very great oxidizing power in the nascent state. In that reaction the different gases are the only active agents. There is all the chlorides, properly treated with acids." (printed record, p. 81, ans. 7). In the same connection the witness says that all these oxidizing agents are, or may be used in refining and bleaching hair.

In his answers 14 to 17 (Printed Record, p. 82), he describes several methods of refining hair.

All but one of the solutions he mentions contained chlorine.

The solution in which he says the hair "Exhibit Marchand No. 1" was refined contained chlorine in water.

The solution in which he says the hair "Exhibit Marchand No. 2" was refined, contained chlorine in the muriatic acid, which is hydro-chloric acid.

The third solution is the only one which contained no chlorine.

Yet all these solutions are, according to his testimony, oxidizing agents—the same in operation as Béné's solution—that is, they disintegrate and remove the surface of the hair.

His answers to x qq. 59 and 60 (printed Record, p. 89), shows that the difference between the different oxidizing agents in refining hair is only a difference in degree.

In answers to x q. 71 (Printed Record, p. 90), he says that when hair has been submitted to any oxidizing agent the roughness of the surface is oxidized and removed.

In answer to x q. 67 (Printed Record, p. 89), he says that hair can be reduced in size by the use of peroxide of hydrogen.

In his answer to x q. 79 (Printed Record, p. 91), he says that one of the ingredients forming peroxide

of hydrogen is muriatic acid, which contains chlorine.

In his answer to x q. 98 (Printed Record, p. 93), he describes the oxidation of hair by the use of permanganate of potash and sulphurous acid, as being the same reaction and effect produced by the chlorate of potash and muriatic acid.

In testifying concerning three bunches of hair introduced in evidence by defendant, x qq. 18 to 21 (Printed Record, p. 83), he says they were treated similarly and with the same result.

d.—Defendant Jeantet testifies (printed record, p. 106, in answers 18 to 21), that one bunch of the hair last mentioned he had of Marchand, one bunch from Paris, and one bunch from complainant Béné.

This witness can see no difference in them, thinks no one can tell by what process the hair was made, and says in the same connection that he is no chemist, and has never refined hair by chemical process.

By summarizing these items of evidence we naturally arrive at the following conclusions:

1.—That the result of Béné's process is to disintegrate and remove the surface of the hair and make it finer.

2.—That this is due to the action of the chemicals in the bath in which the hair is treated—call the action what you will—dissolving, corroding, oxidation, chlorination.

3.—That the hair sold by Jeantet as refined Chinese hair, was refined by the use of chemicals in precisely the same manner.

4.—Keith says by the use of acid and chlorates.

5.—Marchand says by *some* oxidizing agent, he cannot tell which.

6.—That the only difference between the processes

is a difference in the name of the result of the reaction.

7.—That all reduction of hair is by disintegration, which may be produced by a bath composed of muriatic acid and chlorate of potash, or of other disintegrating or oxidizing agents.

8.—That the words "corrode" and "dissolve away," in Béné's patent, should be construed to include oxidation, chlorination, or other terms denoting disintegrating chemical action.

9.—That all the chemicals used in the process named by the witness Marchand are the equivalents of the chemicals named in Béné's second claim.

10.—That the three bunches of hair referred to above are conclusive evidence in support of the claims of Béné, because both the defendant and his expert agree that they are alike, refined by the same action of chemicals which has produced a product that is identical—as one can not be distinguished from the other—one manufactured by Béné, one by Marchand, and one in Paris.

POINT III.

The patent in suit is a pioneer patent, Béné being the first and original inventor of a method of refining hair.

a.—Neither the validity of the patent nor priority of invention is denied by the answer.

b.—The bill alleges that Béné was the first and original inventor (Printed Record, p. 2).

c.—The validity of the patent and priority of invention have been established in the Courts (Printed Record, pp. 8 and 9).

d.—The complainant Béné testifies to his discovery and experiments (Printed Record p. 26, ans. 63).

e.—There is no evidence of the existence of any other invention or patent on the subject of refining hair.

POINT IV.

As the pioneer inventor in the art of refining hair, Béné is entitled to a broad claim and liberal construction.

a.—It has been the general practice of the Patent Office, sustained by the Courts, to award a broad claim to the pioneer in any field of discovery—not so broad as to exclude new inventions—but broad enough to cover the real invention, and prevent others, stimulated by the discovery, from dispoiling him of the advantages of his invention by slight or equivocal improvements, or by colorable differences.

b.—The real invention, in this case, is the reduction of the diameter of the hair by the use of chemicals which will disintegrate the surface.

c.—The inventor commenced his experiments with chloride of lime and acids for bleaching purposes, and during those experiments discovered the method of refining, which he afterwards carried to perfection.

There are scores of disintegrating agents besides chloride of lime, which disintegrate animal tissue. None of these had ever been applied to refining hair. No one ever knew they could be so applied until Béné's discovery.

d.—If, by the use of any other disintegrating agents, the inventor can be met, and his patent rendered useless, what is the value of the franchise awarded him by the patent office?

The courts do not favor such piratical evasion of the inventor's rights. They seek to secure his right to the use of his *real invention*

In this case, to limit the invention and patent to the use of one salt and one acid, would be to ignore the *real invention*, and throw it open to the public.

If the terms used by Béné in his claims and specification are not broad enough to satisfy the fastidious, they are sufficient, taken with the well-known reactions caused by the well-known chemical combinations, to point with unerring certainty to the result sought and obtained by the discovery, viz.: the disintegration and removal, by the bath, of the surface of the hair, and the production of a new article of manufacture and commerce,—hair of fine texture produced from coarse hair—by the use of a disintegrating chemical bath.

In the case of the *American Bell Telephone Co.*, 8th Fed. Rep., 509, it was held that where the inventor had discovered a new art, he had a right to hold the broadest claim that can be permitted in any case.

In the case of Vogler *v.* Semple, 7 Bill., 382, this inventor, being the first in the field, his claims were construed broadly.

In the case of Worswick Mfg. Co. *v.* City of Buf-

falo, 20 Fed. Rep., 126, it was held that where the inventor is the first to enter a particular field of invention, the claim of his patent should be construed broadly, to *cover any similar apparatus* which effects the same result in substantially the same manner.

In the case of Pickhardt *v.* Packard, 22 Fed. Rep., 530, it was held that a party being the first discoverer of a process for making a certain product is entitled to make a broad claim for the product made by his process, or by any *method which is the equivalent of his process.*

In Hammerschlag *v.* Scamoni, 7 Fed. Rep., 584, it was held that when the patent is a pioneer, and a foundation patent, both as to process and machine, it is not to be construed as confined to specific details, if fairly admitting of the liberal construction such a patent is entitled to.

In the case of Rapp *v.* Bard, 1 Fisher, 196, it is held that, when the patentee is the first in the art, his patent may have a broader construction.

In the case of the Standard Measure Co. *v.* Teague, 15 Fed. Rep., 390, it is held that, when the patentee has discovered a wholly new art or method, his patent will be broadly construed to cover all such mechanical means as embody the real invention.

In the case of Knapp *v* Joubert. 19 Blatchford, 148, it is held that when the inventor was the first to employ his device for the peculiar functions performed, he was protected, not only in the particular devices which he employed for this purpose, but against all other devices which are the equivalent of his.

In the case of Stowe *v.* Chicago, 104 U. S. Rep., 547, it is held that, a patentee who is the first to make an invention, is entitled to his claim for all

uses and advantages which belong to it, whether he perceives and states them all or not.

To the same purport see 13 Wall. 453.

In the recent Bell Telephone cases, 126 U. S. Rep., p. 538, the learned Chief Justice, in the opinion of the Court, uses these words: "It is undoubtedly true, that when Bell got his patent he thought the magnet method was the best, indeed he said in express terms he preferred it; but that does not exclude the use of the other if it turns out to be the most desirable way of using the process, under any circumstances."

When Béné says he prefers muriatic acid and chlorate of potash, why should he be precluded from using sulphurous acid and permanagate of potash, if they will accomplish the same result in his process?

e.—Whether the inventor is a pioneer or not his patent should be liberally construed.

In the case of Webster Loom Co. *v.* Higgins, 105 U. S. Rep. 580, it was held that a specification is sufficiently clear and descriptive when expressed in terms intelligible to a person skilled in the art to which it relates.

In the recent decision in the Bell Telephone cases, 126 U. S. Rep. p. 536, the learned Chief Justice in giving the opinion of the Court uses these words: "It is enough if he describes his method with sufficient clearness and precision to enable those skilled in the matter to understand what the process is, and if he points out some practicable way of putting it in operation," &c. This, Béné did; he described clearly and distinctly his process of treating the hair in a bath of such chemicals as would dissolve away a portion of the surface, and reduce the di-

ameter. He then points ont one specific solution by which it can be done, and refers to other ingredients that may be used when desired.

To same purport see also

Mowry *v.* Whitney, 14 Wall., 620.
Kline *v.* Russell, 19 Wall., 33.
Goodyear & Co. *v.* Gardiner, 3 Cliff., 408.
Un. Sugar Ref. Co. *v.* Mattheison, 3 Cliff., 39.
Corning *v.* Burden, 15 How., 252.

The same doctrine of liberal construction is found in scores of cases, and it is confidently believed that no case can be found where the pioneer inventor has been limited to the narrowest possible construction of his claims.

The specification is to be used as an aid in interpreting the claim.

Brooks *v.* Fiske, 15 How., 312.
Hogg *v.* Emerson, 16 How., 587.
Merrill *v.* M. S. & N. I. R. R. Co., 1 Wall., 491.
Seymour *v.* Osborne, 11 Wall., 516.

POINT V.

The patent in suit being a pioneer patent, the patentee is entitled to the benefit of the doctrine of equivalents in its broadest sense, and the use of any equivalents of muriatic acid and chlorate of potash, to disintegrate and remove the surface of the hair, constitutes an infringement.

a.—The question arises, what are equivalents under a proper construction of the patent?

If the first claim is valid there can be no question but that any chemicals which would corrode or dis-

solve away the surface of the hair by disintegration would infringe.

If, as held by the learned Judge before whom the cause was tried at circuit, the patent is to be construed as one "for a process of refining hair by treating it in a bath composed of a solution of a chlorine salt in an excess of muriatic acid," it becomes important to enquire what are the equivalents of the muriatic acid, and the chlorine salt.

This must be determined by the function performed by the muriatic acid and chlorine salt.

That function is to disintegrate the surface of the hair by chemical action,—by corroding, dissolving, cauterizing, oxidation or chlorination,—so that it may be removed by the liquid of the bath.

It would seem that any chemical, or combination of chemicals, which would, in a bath, when used according to Bênè's directions, disintegrate and remove the surface of the hair, so as to reduce the diameter, must,—in view of the first claim, and the well known fact that such substances would disintegrate animal tissue,—be regarded as the equivalents of the substances described in the second claim.

It is not enough to say that any, or all the chlorides and chlorates would be classed in such list. These are not equivalents, simply. They are more. They are like substances. They are all chlorine salts.

The pioneer inventor is entitled under the second claim to the use of chlorine salts and their equivalents, together with muriatic acid and its equivalents.

That defendant's expert refined hair by using substances different from those named in the second claim does not prove that the substances he used were not the equivalents of the chlorine salt and muriatic acid of Béné's bath.

It has been held repeatedly that the inventor is entitled to all the results flowing from his discovery,

although he might have been ignorant of some of them.

Béné made the original discovery that such chemicals as would disintegrate animal tissue could be used in a bath to refine coarse hair. Not being a chemist he did not know all the substances that could be used in his process, but under the law applicable to pioneer inventors, he is entitled to the use of all equivalents, whether they were known to him as such or not.

The scope of the patent is broad enough to cover the use of the equivalents of the chlorine salt and muriatic acid, and it does not matter what chemicals are used, so that they reduce the diameter of the hair by disintegrating the surface.

(*b*) The bath described in the second claim is composed of muriatic acid and chlorate of potash.

According to all the testimony, this bath serves to disintegrate and remove the surface, and reduce the diameter of the hair, thus rendering it fine.

According to defendant's expert it does this by oxidation, and the bath is one of the most powerful oxidizing agents known. It appears from the evidence in the case that the result can only be obtained by the use of a disintegrating agent, chlorinating, oxidizing, corroding, or dissolving.

Complainant's expert knows of no such agent, which will produce this result, except chlorine.

Defendants' expert claims to know of many such, which do not contain chlorine, and names several of them.

It will be observed that in all these cases the ingredients are disintegrating chemicals, and

react in the same way as those used by Béné, and with the same result.

As an instance, he describes a bath of sulphurous acid and permanganate of potash [printed record, page 93, Ans. 98), as follows: "When sulphurous acid and permanganate of potash are put in contact with each other, the permanganic acid is set free, and that permanganic acid is one of the most powerful oxidizing agents. In the oxidizing action the permanganic acid leaves off one part of the oxygen, and acts very quick, because it is in its nascent state." In his next answer he says that "the permanganic acid, in its nascent condition in this solution, is the active principle which reduces the size of the hair."

Referring to his seventh answer (Printed Record, p. 81) we can imagine him answering a similar question as to muriatic acid and chlorate of potash as follows: "When muriatic acid and chlorate of potash are put in contact with each other, chloric acid is set free, and that chloric acid is one of the most powerful oxidizing agents. In the oxidizing action the chloric acid leaves off one part of the oxygen, and acts very quick, because it is in its nascent state. The chloric acid, in its nascent condition in the solution is the active principle which reduces the size of the hair."

It will be observed that in these parallel cases the same words describe the same reaction and the same result, except that in one case the acid is "sulphurous" and the potash "permanganic," while in the other the acid is "muriatic" and the potash "chlorate;" while in one the resultant acid is "permanganic," and in the other "chloric." Both

the resultant acids are among "the most powerful oxidizing agents known," both acting in their "nascent condition;" and both producing the same result on the hair, in the same way.

If these chemical compounds—these oxidizing agents—are not equivalents, why not?

According to defendant's own expert they are both oxidizing agents.

They are acids and salts, which, when put together in a bath, produce a reaction which sets free a gas that in its nascent state disintegrates and removes the surface of the hair.

If it is contended that they are not equivalents because the resultant gas they produce is not chloric acid, the answer is, that, in case they did produce chloric acid, they would not be equivalents, but identical. Iron is not an equivalent of iron, brass is not an equivalent of brass, nor wood of wood; nor is chlorine the equivalent of chlorine.

Brass is the equivalent of iron where, as a metal, it can perform the same office in the same way. And a bath of sulphurous acid and permanganate of potash, with its resultant, permanganic acid, is the equivalent of a bath of muriatic acid and chlorate of potash, with its resultant, chloric acid; both of which resultants are, according to the witness, Marchand, powerful oxidizing agents, producing the same result in the same way.

In the case of Gill *v.* Wells, 22 Wall,. 1, it is held that an equivalent means an ingredient which performs the same function, well known at the date of the patent.

In the case of Ives *v.* Hamilton, 92 U. S. Rep., 426, it is held that where the patent is for the means desired to produce a result, in an action for infringement, the question is whether the defendants use the same or equivalent means.

In the case of Goodyear Dental Vulcanite Company *v.* Davis, 102 U. S. Rep., 222, it is held that a patentee is protected against equivalents for any part of his invention, whether he has claimed them or not.

In the case of Tyler *v.* Boston, 7 Wall., 327, it was held that the term equivalent, when used in regard to the chemical action of such fluids as can be discovered only by experiment, means equally good.

See also Worswick Mfg. Co. *v.* City of Buffalo, 20 Fed. Rep., 126.
Pickhardt *v.* Packard, 22 Fed. Rep., 530, and
Knapp *v.* Joubert, 19 Blatchford, 148.
All above cited, and
Hyndman *v.* Root, 97 U. S. Rep., 224.
Clough *v.* Gilbert Baker Mfg. Co, 106 U. S. Rep., 166.

POINT VI.

The 6th claim, being for a new article of commerce and manufacture, and the goods sold by the defendant under the name of Georgian Hair, being clearly produced according to the process described in Béné's patent, their sale is an infringement of his right to the exclusive sale of such goods in this country.

(*a*) If the process described in the specification, and claimed as a new discovery, is patentable, and the result of the process is a new article of commerce and manufacture, which is also claimed in the patent, the resulting new article of commerce and manufacture is also patentable.

(*b*) The hair of fine texture produced from any grade of coarse hair, either animal or human, by removing the surface in a disintegrating chemical bath, is a new article unknown before Béné's invention, and extensively used afterwards.

It was used in the manufacture of wigs. (Printed record, p. 16, Ans. 25 to 27.) Béné manufactured it largely, employing from 10 to 50 hands (Printed record, p. 13, Ans. 3 to 6). It is refined and bleached in Europe and imported to this country and used to a very large extent (Printed record, p. 27, Ans. 69 to 76). The defendant imported and sold it (Printed record, p. 106, Ans. 19 and 20; also, ans. 30). It was a new article in 1874 and 1875 (Printed record, p. 79, Ans. 12 to 14).

See Pickhardt *v.* Packard, 22 Fed. Rep., 53.
Cochrane *v.* Demer, 94 U. S. Rep., 780.
Tilghman *v.* Proctor, 102 U. S. Rep., 707.
Prov. Rub. Co. *v.* Goodyear, 9 Wall., 788.

(*c*) Hair of fine texture produced from coarse hair, being a new product, the 6th claim of the patent in suit is valid, and the Georgian or refined Chinese hair would be an infringement, although produced by a process different from that of Béné.

See Badische Anilin and Soda Fabrik *v.* Hamilton Mfg. Co., 13 Official Gazette, p. 272.
Merrill *v.* Yeomans, 1 Holmes, 331.
Goodyear *v.* R. R., 1 Fisher, 632.

POINT VII.

The preponderance of testimony is in favor of the theory that hair can only be refined successfully by the use of such chemical compounds in a bath as will set free chlorine.

a.—The only evidence opposed to this theory is that of the witness Marchand; and the only value of such evidence rests upon his opinions as an expert.

The defendant is bound by such opinions; but the complainant should not be prejudiced by them, if they are unreliable.

b.—His standing as a witness is weakened by the fact that he is a confederate of defendant, engaged in manufacturing the same class of goods—and equally liable with defendant for infringement—(Printed record, p. 88: answers, 54 to 66).

Taking for his superintendent, Bêné's skilled workman—(Printed record, p. 102; answers 17 to 179).

c.—His knowledge of the art in which he professes to be an expert is clearly limited and unreliable, and should detract from the value of his opinions, and stamp his testimony as equally unreliable.

He testifies that he never heard of a chlorine salt—(Printed record, p. 85; answers, 34 and 35), but gives the specific names of two classes of salts which contain clorine.

He testifies that the pure solution of chlorine in water—chlorine water—is not manufactured for the trade (Printed record, p. 94; answers,

103 to 106); see Keith's testimony (Printed record, p. 55, answers 11 to 16).

He testifies that chlorates and chlorides of potash are not dissolved in muratic acid, and tells what is and what is not a solution, and says the definitions and statements of reliable chemical authors are wrong (Printed record, p. 95 to 97, answers 116 to 127); see Keith's testimony and authorities cited (Printed record, p. 54, answers 3 to 17.)

The testimony of Keith, above referred to, and the quotations from chemical authors, show that the testimony of Marchand in his 7th answer [printed record p. 85] that "Such as it is described it is perfectly false, as the chlorine salt, I suppose it means chloride and chlorate of potash, are not dissolved in muriatic acid, etc.," is either a quibble, unworthy of a witness under oath, or an indisputable evidence of ignorance; and in either case calculated to detract from the weight and value of his testimony as evidence. The witness Marchand testifies that he is a manufacturing chemist and also engaged in the business of "bleaching—silk, hair, feathers—any kind of bleaching," and no other business.

When asked if he is not engaged in refining hair, he answers:

When I say bleaching I mean refining hair as well as feathers, as well silk, as any bleaching process is positively, without any doubt, equivalent to any refining process for hair [printed record p. 88, answers 51 to 56]. On this point see Keith's testimony [printed record p. 56, answer 17.] Béné describes his process of refining [printed record, p. 31, answer 110.] Keith also describes the process [printed record, p. 42, answer 81.]

The witness Marchand testifies to several methods of refining hair and produces specimens of hair which he says were refined by three different methods, particularly described by him [printed record, p. 82, answers 14 to 17, and p. 99, answers 139 to 143; also p. 100, answers 157 to 164; also p. 101, answers 165 to 170.] These processes were tested by the witness Keith and found to be worthless [printed record, p. 59, answers 41 to 44; also 46.]

The witness Marchand also testified to refining hair by the use of chloride of lime alone, [printed record, p. 81, answer 10; also p. 94, answers 107 to 111.] Keith tested this method and found it a failure [printed record, p. 60, answer 45.]

The testimony of the witness, Keith, shows that his experiments were made with the greatest care and with the assistance of Mr. Smith, who was familiar with the subject and the testimony of Marchand, and Mr. Béné, the inventor of the process and an expert in the treatment of hair, at Béné's laboratory. The chemicals were purchased at the best houses, and no pains spared to produce legitimate results; and yet every experiment was a failure (Printed record, p. 59, Ans. 40; to p. 66, Ans. 59).

It is respectfully submitted that the equivocal, technical and unsatisfactory nature of this testimony of an interested witness, together with the contradicting statements of complainant's expert, corroborated in many respects by chemical authors and outside evidence, and in no manner attacked, discredited or weakened, should not be regarded as entitled to equal weight with the testimony of complainant's expert.

The learned Judge in giving the opinion of the

Court says: "There may be enough in Keith's testimony, and in the cross-examination of Marchand to suggest suspicion that the testimony of the latter is unreliable, but there certainly is not sufficient to subject him to the imputation of perjury."

It is not necessary that he should be guilty of perjury to prejudice his testimony. His testimony as an expert is mainly opinion. If as ignorant in some respects as his testimony indicates, why should his opinion in other respects be relied upon? If he would sacrifice substance to technicality in one thing, why not in another? Some of the hair which he calls refined hair proves on examination to be unrefined. (Printed record, p. 56, ans. 20, 21, 24, 25, 27, 28, and Complt's. Ex. three sketches Aug. 28. '84, J. H. H., N. P., and see Ex.; also Ans. 29 to 39. See also Keith's testimony, printed record, p. 43, Ans. 89 to 100.)

The witness Keith is an experienced microscopist (printed record, p. 67, Ans. 65 and 66). There is no evidence that Marchand ever used the microscope except on this occasion. Being ignorant in chemistry he is liable to be deceived in the ingredients he uses and their results. Being ignorant in microscopy he is liable to be deceived in the appearances of the hair.

The agents he made use of might soften and shrivel, instead of removing the surface, and, as bleaching was his hobby, when bleached he might think it reduced in size. Having imperfect use of the microscope—he does not give its magnifying power—he might easily mistake dirt, sand, grease or other extraneous substance for projections on the surface of the hair. His testimony stands entirely uncorroborated by witnesses or authors, and he cites no authorities; simply makes assertions which the authorities cited contradict. His description of the

three processes (Printed record, p. 82) contradict his statements and theories about bleaching being equivalent of refining, and other statements. He first describes the refining process, then the bleaching process, and then dyes it in the usual way.

Béné nowhere speaks of using peroxide of hydrogen to refine. He does use it for bleaching, and manufactures and sells it to the trade for that purpose.

In these descriptions of Marchand, above referred to, he forgets his theory, concocted for the purpose of defence, and falls back on the true process—first refines with disintegrating agents—then bleaches with peroxide of hydrogen—then cleanses and dyes.

The testimony of Keith is not subject to any such draw back. He is corroborated by authorities cited and by the witnesses Béné and Krause.—His testimony nowhere contradicts or is inconsistent with itself.

His chemical testimony is backed by clearly demonstrated chemical knowledge and authorities.

His microscopic testimony is backed by a knowledge of the Art of Microscopy, and cross-examination strengthened it at all points.

In view of these considerations, it is respectfully submitted that the balance of testimony is altogether in favor of the complainant, on the questions involved in the expert testimony, and should have been so held by the Circuit Court.

Summary.

It is contended on the part of the appellant, briefly as follows:

FIRST.

The patent is a valid, and a pioneer patent, because

1. No denial of these allegations is made in the answer.
2. No defense of want of novelty is interposed.
3. The validity of the reissue is not questioned in the answer.
4. The patent has been passed upon in a prior suit and decreed valid.

SECOND.

Being a pioneer patent, the claims should be construed broadly and liberally.

THIRD.

The terms and language used in the specification and claims are sufficient to cover any and all well known chemical agents that will disintegrate the substance of the surface of the hair.

FOURTH.

The real discovery made by Béné was the method of making fine hair from coarse hair by disintegrating, and removing the surface in a chemical bath.

FIFTH.

In carrying out this method he is entitled to the exclusive use, not only of the chemicals specifically named by him, but also of their equivalents.

SIXTH.

For the purpose of producing the result sought to be obtained, any corroding, dissolving, oxidizing, or chlorinating agent, is the equivalent of any other.

SEVENTH.

All refined hair, whether made here or in Paris, or elsewhere, is made by the use of a disintegrating chemical bath.

EIGHTH.

The specimens in evidence sold by defendant were so made.

NINTH.

They are clearly infringements of the first and second claims of the patent in suit.

TENTH.

Refined hair, like the "Georgian," and "refined Chinese and Japanese" hair is a new article of commerce and manufacture, covered by the sixth claim of the patent.

ELEVENTH.

The hair sold by defendant is clearly an infringement of said sixth claim.

TWELFTH.

The narrow construction given to the patent by the Circuit Judge is not in accordance with the law and the practice of this Court.

THIRTEENTH.

The balance of expert testimony in the case is largely in favor of the complainant's contention.

In view of all this it is respectfully submitted that the decree of the Circuit Court should be reversed, and that complainant should have a decree sustaining the patent as to all its claims, and holding that the defendant infringed the first, second and sixth claims thereof, and directing an injunction, accounting and assessment of damages in favor of the complainants.

SAM. TRO. SMITH,
Solicitor for Complainants
and of Counsel.